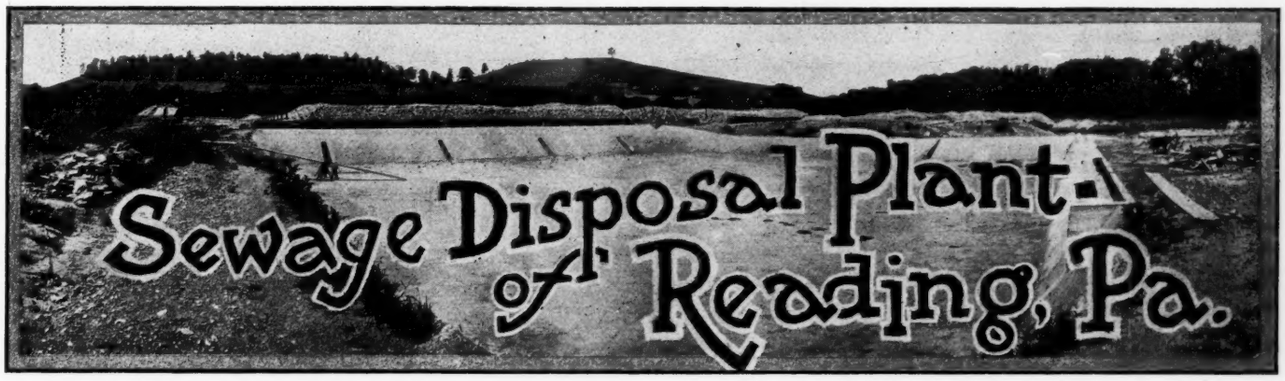
Municipal Journal
And Engineer

VOLUME XXIII. NEW YORK, NOVEMBER 6, 1907. No. 19



SEDIMENTATION BASIN. SPRINKLING FILTER IN THE BACKGROUND

IT is believed that the first large sprinkling filter to be placed into actual service in this country will be that which is now almost ready for use for disposing of the sewage of the city of Reading, Pa. We have previously referred to an experimental filter of this kind used during the test made by the city of Columbus, O., which city, as well as Baltimore, Md., has adopted this method of sewage purification, and similar plants have been adopted for smaller cities. The Reading plant is designed to provide for a future maximum of 7,000,000 gallons per day, although the immediate construction has a capacity of 2,000,000 gallons only, approximately the present volume of sewage.

The method of purification adopted consists in general of the following process: After a preliminary screening, which is made unusually thorough to remove the fibrous materials contributed to the sewage by certain local manufactures, the sewage is pumped to a septic tank on the other side of the Schuylkill river, 6,600 feet away, and which is at sufficient elevation to permit all further flow to and through the succeeding elements of the plant to be effected by gravity alone. From this septic tank the sewage flows to the sprinkling filters, which are located on an island called Fritz's Island, lying in the Schuylkill river, about 2,500 feet away. From the sprinkling filters the effluent passes to the sedimentation basin and from this is discharged into the river.

The apparatus for screening and pumping and the septic tank have certain peculiar features determined by the conditions under which the plant was constructed, several of which possibly would not have been so designed had the engineers prepared the plans entirely uninfluenced by such conditions. The pumping plant, for instance, is one which had already been used by the city for a number of years, in connection with a sewage disposal plant which has for some time been entirely too small for existing conditions, as well as unnecessarily expensive for maintenance. It was believed that the cost of the plant could be reduced by making use of the site and the steel frame-work of the elevated beds of this old disposal plant in the construction of the septic tanks, and their dimensions and form of construction are, therefore, to a considerable degree, controlled by those of the old plant. Owing largely to the inability of the city to raise the funds necessary for the construction of this plant, it was decided to have the same built by private parties, who are to be paid a fixed sum annually for operating the same for the treatment of the sewage, the plant to revert to the city at the end of five years. The sprinkling filters, however, were not affected in their design by any previous construction, nor was the topography of the site, which is an admirable one, such as to place any unfortunate limitations to the design.

THE SCREEN

The majority of disposal plants, and probably all which pump the sewage, screen the larger floating matter therefrom as a preliminary to further treatment. Most of these, however, remove only such matter as would be caught by a screen of half-inch to one inch mesh. In the Reading plant a rotary screen, called by the contractor (who has patented the same) a "segregator," is used. This consists of a cylindrical screen open at both ends, which continually revolves around a horizontal axis at the rate of three revolutions per minute. The sewage passes through the openings in the screen and drops into a well below, the suspended matter being retained on the inside of the screen. The frame of the segregator consists of three iron rings, one at each end of the cylinder and the third midway between them, which are held together by six bolts, passing through 1 1-2-inch pipes, which serve as spacers. Placed around the circumference of a circle inside of these bolts are eight ribs, each

rib bored so that the screen may be bolted to it. The screen, which is 6 feet in diameter and 16 feet long, is of brass wire 40 meshes to the inch, and is made in eight segments. It is stiffened and strengthened by a heavy body screen of 3-4-inch mesh galvanized iron wire, attached permanently to the frame. The end rings of this frame revolve on 12-inch wheels and the whole is driven by a link belt from a 2 1-2-horsepower engine.

The 40-mesh screen is expected to catch a very large part of the suspended impurities in the sewage and would undoubtedly clog up very rapidly if no provision were made for keeping it clean. To effect this, a 3-inch horizontal pipe is suspended on each side of the screen, outside of and a few inches from the same, parallel to its axis and about 45° above the horizontal plane through it. Each of these pipes is pierced at fifteen points spaced at 10-inch intervals, from which jets of water, steam or air are to be driven against the outside surface of the screen and normal to it; the pipes being arranged to move longitudinally back and forth a distance of 12 inches, thus causing the jets to strike every part of the screen. These jet openings are 3-32 of an inch in diameter, and it is expected to give the jets a pressure of twenty pounds to the square inch, although this can be increased to 200 pounds. It is the present intention to use condenser water for these jets, it being believed that the heat will help to remove the deposit from the screen. The sewage enters the screen cylinder from a 24-inch pipe at one end, and is deflected to the sides of the cylinder by a baffle plate about eight inches beyond the end of the pipe. The sewage is expected to flow through the meshes of the screen and at the same time force toward the further end the suspended matter which is being constantly loosened by the cleaning jets. This suspended matter, as it is forced from the further end, will drop into a bucket conveyor, which will carry it to a spiral conveyor, which in turn will deposit it in bags. These bags are to be placed in a centrifugal wringer making 800 revolutions per minute, by which a large part of the liquid will be removed from the solid matter. The latter will be disposed of for fertilizer or used for fuel.

The sewage, after this screening, will, as before stated, be pumped to the septic tank through a force main consisting of 250 feet of 36-inch cast-iron pipe, 450 feet of 30-inch (which section lies in the river bed) and 5,900 feet of 20-inch pipe.

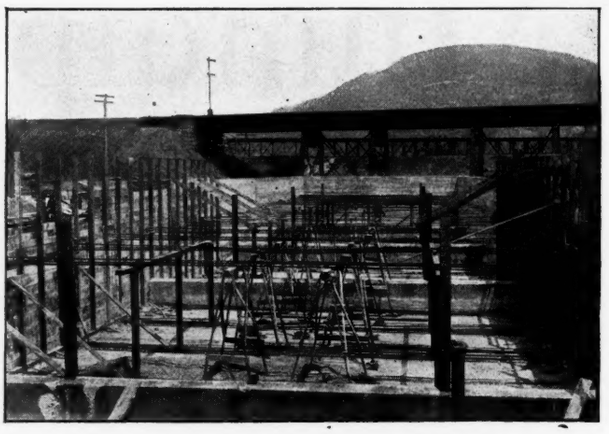


FIG. 2. SEPTIC TANK DURING CONSTRUCTION

The Septic Tank

This tank is 51 feet 8 inches wide by 253 feet long, inside measurement, and 17.35 feet deep, and is to be left uncovered. The overflow level is about one foot below the top. This unusual depth of 16 feet is, we believe, due largely to the desire to utilize the frame-work of the old disposal plant and at the same time to have the sewage leave the tank at sufficient elevation to carry it by gravity through the subsequent pipes, beds, etc. The capacity of the tank is about 1,600,000 gallons; the present sewage flow is about 2,000,000 gallons per day; the tank, therefore, holds about nineteen hours' flow, but when the rate reaches the estimated maximum of 7,000,000 gallons per day the capacity will be but about 5 1-2 hours' flow. Fig. 1 shows a view of the completed septic tank. The building and chimney to the right of the tank are those of the old garbage incinerator. In the old plant the effluent discharged directly into the river, which is seen passing under the railroad bridge at the extreme left. In the new plant the effluent passes through a pipe line to an island a half mile further down the river.

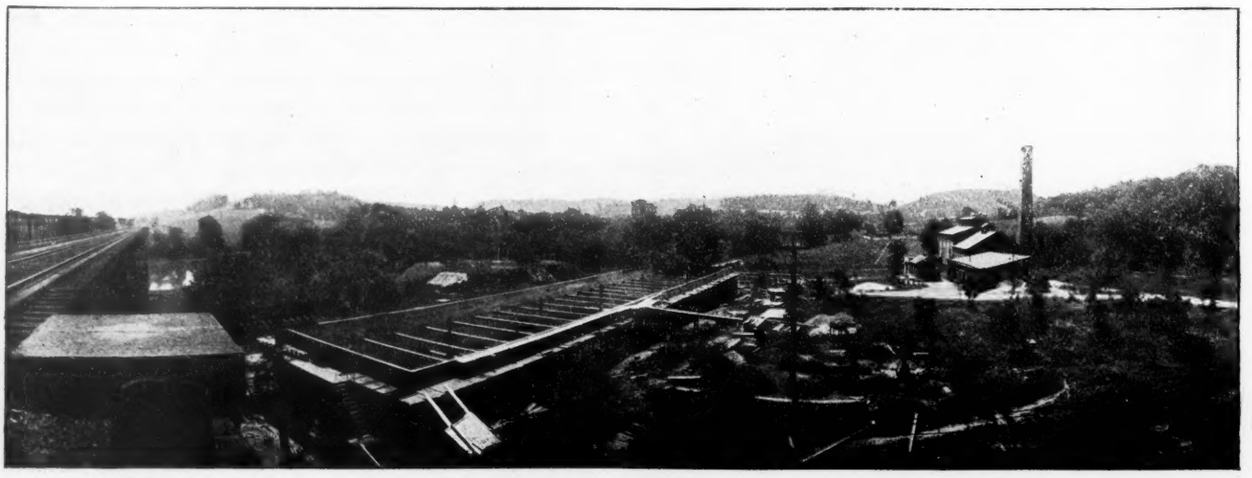


FIG. 1. SEPTIC TANK COMPLETED, SHOWING SURROUNDINGS

At the inlet end of the tank, supported 11 feet above the floor on two concrete columns, is a 14-inch riveted steel influent pipe, fed by a vertical termination of the 20-inch pumping main. On a line 45° below the horizontal, twelve 5-inch holes 3 1-2 feet apart are cut through the wall of the influent pipe. At the other end of the tank and extending completely across it is a trough into which the effluent flows, passing over a timber weir whose crest is 1.15 feet below the top of the wall, both trough and weir being supported by timber posts and the latter by a vertical 24-inch effluent pipe also, which is bolted to the bottom of the trough and passes through the floor of the septic tank. Five inches in front of the weir is a two-inch scum board extending the full width of the tank and with its bottom one foot below the crest of the weir. The pipe carrying the effluent from the septic tank to the filter beds is of concrete, 30 inches in diameter.

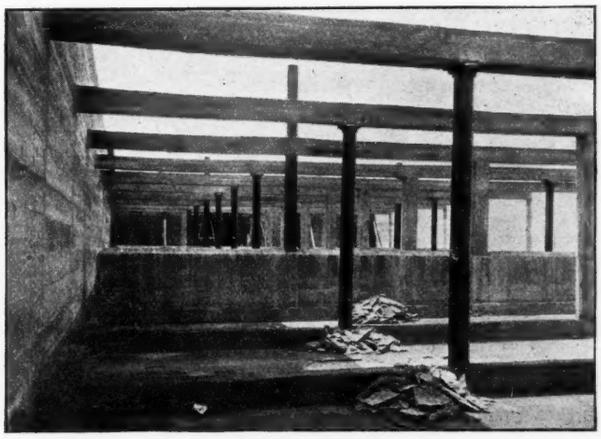


FIG. 3. INTERIOR OF SEPTIC TANK

The outside columns of the old plant were incorporated in concrete buttresses to the walls of the tank, which are further supported by steel rods tying these columns together. These tie-rods consist of four 1 1-2-inch rods and two 7-8-inch rods at the bottom of each buttress and four 1-inch rods and two 7-8-inch rods at the top. Each group of rods is enclosed in a concrete beam, 12 inches deep and 14 inches wide, the upper ones being supported by cast-iron posts. These are plainly seen in Figs. 1, 3 and 4, while in Fig. 2 may be seen the rods before being enclosed. The buttresses are spaced 12 feet 9 inches apart, center to center, and are 24 inches wide and extend 2 feet 8 inches beyond the outside base of the wall. The side walls of the tank are formed of concrete, 9 inches thick at the top and 18 at the bottom, and are reinforced with horizontal round rods spaced from 5 to 7 3-16 inches apart, that part of the wall above the upper tie-beams being figured as a cantilever and provided with both vertical and horizontal reinforcing rods. The end walls are figured as cantilevers for their entire height, there being no longitudinal tie-rods to support them, and are 30 inches thick at the bottom, with a reinforcing toe extending for 4 1-2 feet outside of the inner face of the wall and 13 feet inside of the same. The horizontal reinforcement in

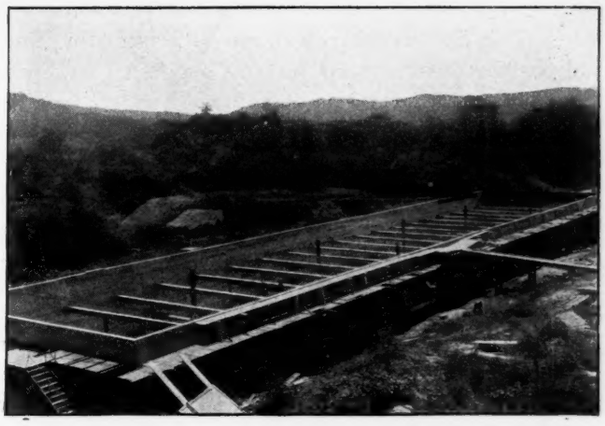


FIG. 4. SEPTIC TANK COMPLETED

these walls consists of 5-8-inch to 1-inch rods spaced 12 inches apart and vertical rods 7-8, 3-4 and 1-2-inch in diameter are spaced 3 inches apart at the bottom and 8 inches apart at the top, there being three tiers of rods.

The bottom of the tank is divided into five compartments by four cross-walls, shown in Figs. 2 and 3, which formed a part of the original construction of the old plant.

The concrete used in this construction was composed of one part Lehigh Portland cement, two parts of sand and four of slag, having a maximum dimension of 1 1-2 inches. The concrete was mixed by hand, quite wet, and deposited in water-tight forms. Nothing but the imperviousness of the concrete was relied upon for water tightness.

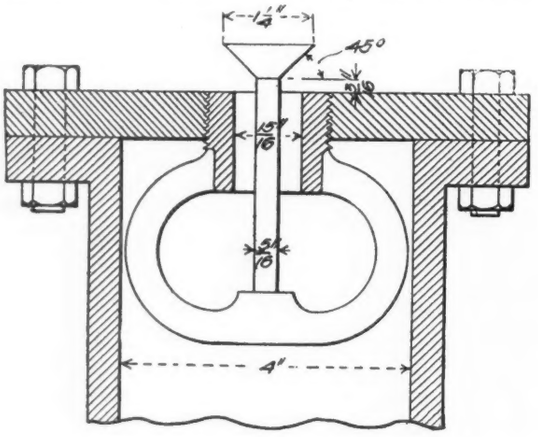
The Filter Plant

A portion of Fritz's Island, thirty acres in extent, was selected for the location of the filters, the highest part of which area is twelve feet lower than the septic tank weir and seventeen feet above ordinary low water of the river. This area is believed to be abundantly ample for accommodating the filters required for many years to come. It has been laid out to accommodate eight one-acre beds; only one of these is being built at present, however, as it is believed that this is ample to purify the present flow of approximately 2,000,000 gallons per day. A part of the area was leveled off to receive this filter bed, the bottom of

FIG. 5. BED OF SPRINKLING FILTER

the excavation being about twenty feet below the weir level. This filter is what is known as a sprinkling filter, and contains several novel features suggested largely by the experiments carried on at Columbus under the direction of the consulting engineers, Messrs. Hering and Fuller.

The filtering material employed is blast furnace slag, which could be obtained very cheaply and abundantly from a dump in the city. This was broken by hand into pieces varying in size from 1 1-2 to 4 inches. The outside of the filter is formed of vertical walls of dry rubble for a short distance above the bottom, and above this of large pieces of slag laid by hand to a batter of about 2 horizontal to 3 vertical; the space within this, covering exactly one acre, being filled with broken slag to a depth of 5 feet. As has been the case, we believe, in all plans for or experiments on sprinkling filters in this country, stationary sprinklers rather than traveling or rotary ones were selected for applying the sewage. These sprinklers are set at intervals of 14 feet 2 inches along



NOZZLE FOR SPRINKLING FILTER

parallel lines of 8-inch pipes, which traverse the bed 13.7 feet apart; these pipes, called distributors, being carried in concrete walls a short distance above the bottom of the tank. The nozzles consist of an inverted cone with 45° sides on the top of a 5-16-inch rod, which passes through the center of a 15-16-inch nozzle orifice; the junction of the rod and cone being 3-16 of an inch above the plane of the orifice. Brass is used for the construction of this, and the whole is bolted to cast-iron lugs on the top of a 4-inch vertical pipe which rises from the distributors. The main distributor, which carries the sewage from the dosing apparatus (to be described later) is of 30-inch sewer pipe, which divides into two lines, one of 30-inch pipe and the other of 28-inch square concrete conduit, 46 feet apart, which pass in parallel lines to the middle of the bed. Here they both connect to a line of 24-inch vitrified pipe at right angles to them, there being a valve in this pipe on either side of each of these two distributors. (Two of these valves are seen to the right of the center of Fig. 6.) By closing either one of these valves one-quarter of the entire area can thus be put out of service. From this 24-inch line, at intervals of 13.7 feet, lines of 8-inch vitrified pipe are laid at right angles,

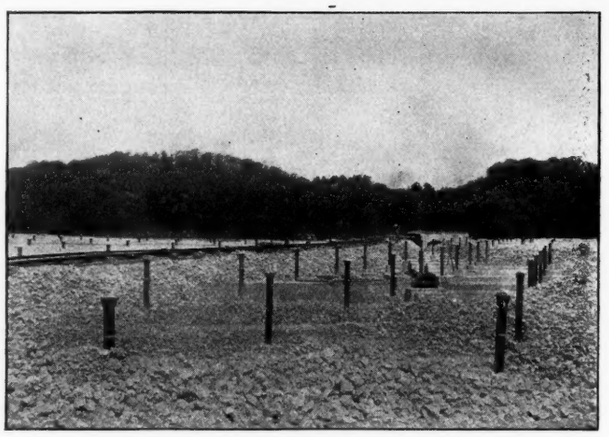


FIG. 6. SPRINKLING FILTER UNDER CONSTRUCTION

and from these rise the 4-inch iron pipes which carry the nozzles. (These show prominently in Fig. 6, and their tops are seen protruding from the filter in Fig. 7.) All these pipes are built into concrete and all joints are made with cement mortar. The iron nozzle pipes rest in 8x4 T's, into which they are cemented, a pier of concrete being built around each joint to a point 10 inches above the T. The floor of the filter is composed of 4 inches of 1:3:6 concrete, sloping one foot from the sides toward the center. On this, as drains, are laid split 6-inch vitrified bell-and-spigot pipes, which were bedded, when placed, in thin cement mortar, the joints being left open. (The floor, with some of the drains in place, is shown in the foreground of Fig. 5, while in the background may be seen the 8-inch distributors upon low concrete walls, with part of the slag in place.) These drains were covered with hand-placed slag in pieces of about 5 or 6 inches diameter. They lead to a concrete trough running longitudinally through the center of the bed, which is 2 feet wide and 4 inches deep at the ends and 12 inches deep at the center of the bed. This trough is covered with concrete slabs supported above the drains on concrete sills. The effluent which is thus led to the center of the bed is received by a drain, which passes beneath the filter floor and carries the effluent to the sedimentation basin, this drain being a 30-inch pipe of concrete segmental blocks.

Owing to the abundance of ground water in certain portions of Reading and the failure to obtain tight sewers through these sections, the sewage is quite dilute in wet weather, and it is therefore believed that this one filter will purify 3,500,000 gallons per day of this septic effluent. The average sewage contains, in parts per million, 100 parts of chlorine, 113 of total suspended matter (of which 78 are volatile and 35 fixed), and 40 parts of oxygen consumed.

DOSING APPARATUS

One of the difficulties heretofore found with stationary nozzles for sprinkling filters has been to obtain uniform distribution of the sewage over the entire surface, the spray tending to form umbrella like sheets which fall in more or less narrow rings concentric with each nozzle. It is proposed in this plant to obviate this difficulty by causing the head to alternately rise and fall, which will

cause the ring of wetted surface to alternately approach and recede from the nozzle and thus cover the entire surface of the bed. To effect this, a dosing apparatus was designed which is located opposite the middle of the sprinkling filter. It consists of a wooden tank 19 feet in diameter, which is divided into three compartments of unequal size, the largest of which is called the dosing compartment, the next largest the storage compartment, and the smallest the overflow. By an arrangement of valves and cross-connections, the valves being operated by floats, the sewage from the septic tank is compelled to flow for a while into both the dosing and storage compartments, the outlets meantime being closed; but when the water has risen in these until a head of 7 feet over the sprinklers has been reached, the discharge valve is opened and both compartments discharge through the main distributor to the nozzles. When the head has fallen to 3 1-2 feet the storage compartment outlet is closed, but the dosing compartment continues to discharge until the head has fallen to 2 feet, when both outlets are closed and the operation is repeated as above.

FIG. 7. SPRINKLING FILTER NEARLY COMPLETED

This is repeated at intervals of seven or eight minutes, there being no flow during from two to four minutes of this time. It is seen that this causes the head upon the nozzles to fall from 7 feet to 2 feet, the flow then stops until the tanks have refilled, when the 7-foot head again becomes effective. This apparatus has been patented by the contractor.

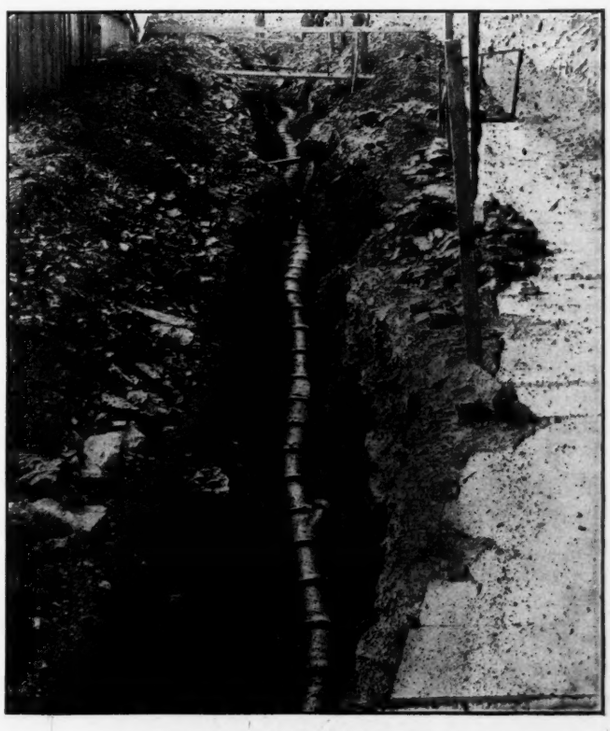
Sedimentation Basin.

It has been found that a considerable part of the organic matter which is removed by sprinkling filters is deposited upon the stones of the filtering material, where it hardens and at intervals, usually of weeks, it peels off from these and is carried out by the effluent. This material is in general inoffensive, but if allowed to discharge into the river would probably cause deposits and would certainly give an objectionable appearance to the water. To remove this, the effluent from the sprinkling filter is passed through a sedimentation basin, where this solid matter is deposited. This basin is 100 feet by 95 feet 9 inches inside the slopes, and is 4 feet deep at the upper end and 5 feet at the lower. The slopes are 1:1, and the capacity is about 340,000 gallons, or about one-ninth that of the sprinkling filter's maximum daily rate. The basin is lined with brick and cobble stones plastered with cement mortar. The filter effluent enters the basin through four ports, shown on the further side of the basin in the illustration at the head of this article, to which it is brought by the 30-inch concrete pipe before referred to. After passing across the basin the effluent flows over a weir on the opposite side and from there into the river. A by-pass from the filter directly to the river can be used when the sediment is being removed from the basin or in an emergency. The same illustration shows the weir wall at the right hand end, and in the background the incompleted filter bed.

The Consulting Engineers for this work were Messrs. Hering and Fuller of New York, who acted in cooperation with the City Engineer Elmer H. Beard. The contract was awarded to the only bidder therefor, O. M. Weand of Reading, Pa.

SEWER ALIGNMENT

In most specifications for the laying of sewer pipe there is some provision made for obtaining straight alignment, such as that "while pipes are being laid in any section between manholes, light from the remote end of the section shall remain constantly in plain view throughout the entire length of such section." We have seen a number of lines of sewer which indicated, by their departure from these specifications, that the engineer was not particularly impressed with the necessity for enforcing this provision. The illustration shows about the worst case which has come to our notice. The photographer was standing upon a manhole at one end of a pipe section,



NOT ACCORDING TO SPECIFICATIONS

and the manhole at the other end was occupied by the boy whose legs appear in the middle of the background. The grade of this line of pipe was about as crooked as the alignment. It was stated, in defense of this construction, that the fall was so great that the sewage would easily be carried around the bends or through any depressions.

There are two special reasons for demanding straight grade and line in a pipe sewer. Curves cause a loss of velocity, even a slight variation from a straight line producing a measurable effect, and where the grade is low straight alignment is therefore particularly desirable. Another advantage of the straight bore is that obstructions of any kind, the location of Y branches or of broken pipes, loops of joint gasket, etc., can be determined by looking into the pipe from either manhole, at the same time casting into it a ray of light from a mirror, or otherwise. Such obstructions, while more frequent on flat grades, are not confined to them, but may be caused on steep ones by sticks, clothes-pins, bones or other obstructions which have found their way through a house connection into the sewer; also by dirt or even bricks or other large obstructions which may be introduced through manholes, maliciously or otherwise. The crooked sewer can, of course, be inspected for only a short distance from each end. Irregularities in grade offer, in addition to these objections, the additional one that deposits are apt to form in the low points and putrefy, thereby giving rise to offensive gases. If a straight bore is obtained every part of a sewer system is open to inspection, and the impossibility of such inspection may often require the tearing up of long stretches of sewer to find an unlocated obstruction or other defect.

Protecting Public Water Supplies

THE New York State Department of Health can, under State law, require the construction and maintenance of a system of sewerage in any village or hamlet when it believes this is necessary for preventing the pollution of a public water supply; but in such case the municipality or corporation owning the water works benefited thereby must bear all the expenses, and also make adequate compensation for any property taken or damage done. Such compensation may be sued for; but if either party, before the suit, has offered to take or pay a stated sum, no costs shall be awarded against such party unless the judgment is more unfavorable to him than his offer. The State Attorney has interpreted this to mean that damages and injury caused by changes made because of the above requirements must be ascertained and paid prior to taking possession of the property. That the Health Department "can make and promulgate rules regulating and controlling the use of premises surrounding the sources in all regards, and that a person violating any of those rules can be punished as provided by the penalties, but before such punishment can be inflicted, the corporation for whose benefit the rules are made and established must pay or tender to the owner of the property affected by the enforcement of such rules an amount equal to all damages for making the changes necessary."

POLICE ADMINISTRATION

Necessity of Oversight—Supervisors of Patrolmen—Official and Personal Duties—Selection—Sergeants—Duties and Qualifications

By LEONHARD FELIX FULD, M.A., LL.M.

IT is a fundamental principle in administrative organization which demands that the operatives be under the personal direction of a superior. In the factory we have the forelady, the masons have a foreman, the section gang on the railroad a section foreman, and the clerks in the employ of the government a chief of division. There is a two-fold necessity for such a supervisor. The operatives in every administrative system are individuals of limited education and intellectual capacity. There is a constant tendency on the part of many of them to shirk their work. As one great executive has well remarked: "Men are as lazy as they dare be." But even if all the operatives were well-educated, intelligent and industrious, the supervisor would be required to direct their work. Each man in doing his own work has no opportunity to comprehend properly his relative position in the administrative system, and it is the duty of the supervisor to plan the work and to co-ordinate the efforts of his operatives in carrying it to a successful conclusion. The police business differs in this respect little from other great organizations. The patrolmen are almost invariably men of limited education and intelligence. The authority with which they are invested and the respect shown them by the citizens create in them an inordinate desire to shirk their work, or, as they themselves express it, "to take it easy." Here is the primary need for supervisors of patrolmen, who are called in different cities of the United States either roundsmen, lieutenants, sergeants, corporals, non-commissioned officers, street sergeants, squad sergeants or round sergeants. In discussing the duties of these officers in the present paper, we shall call them roundsmen.

SUPERVISORS OF PATROLMEN

The duties of the roundsman may perhaps be best described chronologically. Before going out upon patrol duty the patrolmen of the platoon are lined up before the station-house desk for roll-call, inspection, and instruction. The roll is called by the desk sergeant, who also gives to the men any routine instructions which he may have. The roundsman next inspects the platoon. The purpose of this inspection is to make sure that the patrolmen are neatly attired and carry all of their necessary accoutrements. Batons, keys, and revolvers are inspected at each roll-call, and charges preferred against any patrolman who has forgotten any part of his equipment. With a sharp command of "Fall in, forward, march," the roundsman marches his platoon in military formation through the streets to their respective posts, and personally sees to it that each patrolman relieves his predecessor at the proper street, charges being preferred by the roundsman against any patrolman not found at the designated relieving post at the proper time and unable to explain his absence. During the time that his platoon is performing

patrol duty the roundsman must also patrol the precinct, and is responsible for the proper performance by the patrolmen of their police duties. He must visit each patrolman as often as possible, and in no case less than once during each tour of duty. If possible, the roundsman must endeavor to find the patrolman on post without calling him, but, failing in this, the call is sounded by the roundsman with his baton or with his whistle once at each end of the patrolman's post and once at the center. If after this the roundsman is still unable to find the patrolman, he either covers the patrolman's post himself or orders the patrolmen on the neighboring posts on each side to cover it. The matter is reported by the roundsman in writing to the captain of the precinct, and charges are preferred against the patrolman unless he satisfactorily explains his absence. While making his rounds, the roundsman must furthermore carefully note any delinquency or violation of the rules and regulations by any of the patrolmen, as well as carefully investigate the character of all suspected houses and persons on the several posts which he is covering.

It is the duty of the roundsman to become thoroughly acquainted with the relative efficiency of the patrolmen under his charge, and he must avoid all unofficerlike familiarity with his subordinates. Roundsmen are forbidden to walk or converse with patrolmen except while actually engaged in the transaction of police business. Roundsmen must enforce a respectful and strict obedience from the patrolmen and instruct the patrolmen in their respective duties. As a superior officer coming into immediate and constant intercourse with the patrolmen, the roundsman is expected to set an example of sobriety, discipline, energy and activity, of neatness and accuracy, of thoroughness and courtesy, and of moderation and dignity at all times and in all places. In case of fire, riot, or other serious emergency, the roundsman on duty nearest the scene of the disturbance must report the matter at once to the station-house, and in the meantime take command at the scene of the disturbance and take such action as the emergency may require. The roundsman whose platoon is on reserve duty at the station-house may, in case of a serious tumult which requires the presence of the sergeant at the scene of trouble, be called upon to take charge of the desk and become for the time being an acting desk sergeant. The roundsman of the platoon which is on reserve at the station at night must make at least one inspection every night of the dormitories in which the patrolmen sleep, and prefer charges against any patrolman guilty of any irregular, negligent, disorderly or uncleanly habits.

Briefly stated, every roundsman should possess all the qualifications of an ideal patrolman, and he needs no others. We shall examine the various methods employed in the United States in selecting roundsmen to ascertain whether they succeed in promoting to the rank of roundsman only ideal patrolmen. In the historical development of the American police system the roundsman was at first a man who had never served as patrolman, but was selected by the chief from outside of the police force. Whether an officer selected in this manner was an efficient roundsman depended almost entirely upon the honesty and ability of the chief, but a roundsman selected in this manner certainly frequently lacked police experience—a very important qualification for the position. The next step was to recognize the fact that a roundsman must be an experienced patrolman and to appoint to the position of roundsman only patrolmen of the city's police force. This is the universal rule in the United States to-day. In selecting the patrolmen deemed worthy of promotion, the only requisites were that the patrolmen have sufficient political influence. Two or three decades ago this was the rule in almost all the cities of the United States; to-day it is the custom in all but a score of the largest cities. When the Chief of Police of a city was dishonest, political influence failed to secure promotion unless the applicant in addition was able and willing to pay for it. The Lexow Legislative Investigating Committee in New York learned from competent and trustworthy witnesses that there was a published tariff of the prices to be paid by all the applicants for promotion. When the non-professional head of the police force was honest and of a strong personality he sometimes succeeded in ignoring political considerations when promoting patrolmen to the rank of roundsmen. Such cases were of infrequent occurrence. Yet Theodore Roosevelt made it a rule of his office to ignore all racial, religious, or political considerations in making promotions, and his plan was to promote the policemen whose courageous deeds entiled them to a police medal or to honorable mention, unless their entire police record was so bad as clearly to show them to be unfit for appointment as roundsmen. This system was certainly better than the system of political promotions, since such prompt reward of meritorious service served as a great incentive to the patrolmen, but it is doubtful whether men who risk their lives by performing brave deeds necessarily make the best roundsmen.

In the largest cities of the United States to-day promotions of police officers are made after a Civil Service examination. This examination consists of three parts—a mental examination, a physical examination and an administrative examination. All of these examinations are thoroughly practical. For promotion from the position of patrolman to that of roundsman, the mental examination includes problems in simple arithmetic, such as the average child in the fifth or sixth school year can readily solve, a memory test which consists of a verbal police order of about thirty words repeated twice by the examiner and to be reproduced in writing by the candidates, elementary questions on city government consisting principally of questions designed to test the candidate's knowledge of the relations existing between the Police Department and the other departments of the municipal government, and questions on the duties of a roundsman as contained in the police manual of the city. The physical examination is generally conducted by the police surgeons, and consists of physical tests, medical tests, agility tests, strength tests, and special sense tests designed to determine the policeman's physical fitness to perform police duty. The physical examination for promotion to the position of roundsman is strikingly similar to the

physical examination for the position of patrolman. Having determined by the mental and physical examinations that the applicant is physically and intellectually eligible for promotion, the administrative part of the examination determines from a critical study of his work as a policeman what the character of his work as a roundsman will probably be. In the administrative examination each applicant is given a minimum rating to start with—generally 80 per cent. His record is then examined, and he is given credit for every meritorious act requiring physical courage performed by him in the course of duty. Three per cent. is generally given for honorable mention and 5 per cent. for a police medal. His record is next examined for entries of official delinquencies, and he is penalized 1 per cent. for each day's pay which he has lost as the result of the decision of a trial officer convicting him of a violation of the rules and regulations of the department.

The percentage which a candidate receives in this administrative or record examination is the best possible test of his efficiency as a patrolman and the general average of the percentages received in the mental, the physical and the administrative examinations is the best test of the candidate's potential value as a roundsman thus far devised. The candidate's receiving a passing mark—and 75 per cent. is generally fixed as the passing mark—are placed on an eligible list in the order of their respective percentages, with the single exception that veterans of the army or navy who receive a passing mark are placed at the head of the eligible list. From this eligible list three names are certified to the non-professional head of department for each vacancy occurring in the position of roundsman and a name which is rejected by the appointing officer three times is not again certified except by special request of the appointing officer. This Civil Service system is a very good test of the potential efficiency of candidates for promotion, and insofar as the Civil Service examination itself is concerned, it divorces the subject of police promotions entirely from the baneful influences of political and pecuniary considerations. The dangers and evils arising from the peculiar manner in which under the law eligibles are certified for appointment will be considered hereafter.

Sergeants

Although in the United States we do not consider the police precinct station house as important a place as do the people of Europe, yet every municipal Police Department finds it necessary to keep a superior officer at the station house desk every minute of the twenty-four hours. This officer is called in the different cities of the United States either sergeant, desk sergeant, house sergeant, lieutenant, station-house keeper or station-keeper. In the present paper we shall call these officers desk sergeants, which is their title in Washington, D. C., and which is the title expressing most clearly their duties. The desk sergeant performs four distinct classes of duties—clerical duties, police duties, janitorial duties and judicial duties. The clerical duties of the desk sergeant require him to keep the station-house blotter and all other precinct records as well as to prepare for transmission to the central office all reports required to be made by the rules and regulations or by general or special orders. His police duties include a careful inspection of the uniforms and equipment of each outgoing platoon, a patrol of the precinct when not serving at the desk, for the purpose of supervising the work of the patrolmen and roundsmen and the promulgation to the outgoing platoon of all orders received at the precinct from the chief of the force. While on patrol duty the sergeants rank superior to the roundsmen, but all the regulations governing the conduct of roundsmen while in the performance of their duties apply also to the sergeants. In the Police Departments of those cities in which there is no officer intermediate in rank between the captain and the sergeant, the captain must designate one sergeant, who is to exercise all the powers of the captain in the captain's absence; such a sergeant bears the title of "sergeant in command" while serving as an acting captain.

From the historical point of view, the sergeant's janitorial duties were in America his most important function. It is still to-day his duty to keep the station-house well cleaned, lighted and heated, to exclude therefrom all persons who do not come there for the purpose of transacting business and to inspect every part of the station-house at least once during each tour of duty. The sergeant's judicial duties relate almost exclusively to the arraignment of prisoners before his desk. Every patrolman on making an arrest must conduct his prisoner at once to the station-house, using a patrol wagon to convey him thither if the condition of the prisoner demands it. Upon arriving at the station-house the patrolman arraigns his prisoner before the sergeant's desk and the sergeant inquires into the nature of the charge and records in the blotter the name, age, conjugal condition, occupation, and address of the prisoner, together with the nature of the offense with which he is charged. After this, the prisoner is searched and all money and valuable property found on his person is handed to the sergeant for safe keeping and transmission to the property clerk of the department. The sergeant is further authorized to accept bail in all cases of misdemeanors. In some cities of the United States he can also issue warrants for arrest. In addition to these legal judicial powers, important as they are, the desk sergeant has far more important extra-legal powers of a judicial character. These extra-legal powers show that the judicial functions of the police officer on duty at the station-house are absolutely essential, and if not provided by statute, as in France, they will be supplied by extra-legal customs. In considering complaints submitted to him by citizens, in determining whether a prisoner arraigned by a patrolman should be locked up and in settling disputes between citizens he practically acts as a judge, although neither the statutes nor the regulations make any mention of these duties. The proper discharge of these duties requires discretion, intelligence, education and experience.

Just as the duties of the desk sergeant are of a four-fold character, so the qualifications which the ideal sergeant should possess are four in number. He should be able to write a fair hand and to prepare reports with

ease; he should be thoroughly experienced in the police business; he should be discreet and intelligent, and he should have at least a rudimentary knowledge of criminal law. The civil service examination for promotion from the position of roundsman to that of sergeant aims to select men with these qualifications. Like the promotion examination for the position of roundsman, it consists of three parts: a physical examination, an administrative examination and a mental examination. Both the physical examination and the administrative examination are the same for the position of sergeant as for the position of roundsman; the mental examination, however, is slightly different. In addition to the subjects included in the mental examination for promotion to roundsman, the examination for promotion to sergeant requires the candidate to submit a police report, by which his ability to prepare a written report is tested and the question paper in the subject of government includes legal questions in criminal law and the law of evidence, by which the candidate's knowledge of the principles of law arising in the daily routine of the sergeant's line of duty may be ascertained. As long as the sergeant is to be selected from the ranks of the police officers of the next lower grade, this civil service examination undoubtedly secures the best available material. If the sergeant is to perform patrol duty in addition to his clerical and judicial duties he must certainly be selected in this way to make sure of his being an experienced police officer. We may, however, obtain some valuable suggestions on this point from the corresponding officers in the French and German police systems.

(To be continued.)

TREATING WOOD PAVING BLOCKS

WHEN asphalt was first introduced as a paving material little information concerning the same existed outside of that possessed by the contractors, and it was only gradually that representatives of the cities themselves were able to prepare specifications covering such construction. Similarly, excellence in wood paving blocks treated after the most approved modern methods has heretofore depended largely upon the desire of the manufacturers to turn out an article which would advertise itself by its own good qualities. With competition, however, has come the inevitable tendency to reduce the cost at the expense of quality. At the same time information concerning the treating of wood blocks has become more general, and it would seem that the time has arrived when these should be contracted for under specifications in the same way as other materials are. In a paper presented to the American Society of Municipal Improvements, George W. Tillson discusses such specifications.

The object of the treatment of wood blocks is, he says, primarily to prevent decay. Secondarily, it should prevent the absorption of water, which causes expansion and contraction, resulting in bulging of the pavement when wet and in loose joints when dry. The specifications in New York City, where has been laid probably more treated wood block than in any other city of the country, contain the following clauses:

"The blocks are to be treated throughout with an antiseptic and waterproof mixture, 75 per cent. of which shall be creosote or heavy oil of coal tar conforming to the specifications hereinafter set forth, and 25 per cent. of which shall be resin conforming to the specifications hereinafter set forth. All parts of each individual block shall be thoroughly treated, and not less than 20 pounds of the mixture per cubic foot shall be injected.

"In preparing the blocks to receive the creosote mixture, they shall be placed in an air-tight cylinder, in which dry heat, or heat produced by superheated steam, is maintained and raised to a temperature of 215° Fahrenheit for one hour, for the purpose of expelling moisture; the heat is then to be increased until it has reached 285° Fahrenheit, this heat being maintained for a period of three hours, or until the block is completely sterilized. Application of heat is then to be stopped and the temperature of the cylinder allowed to fall for one hour, or until the same has been reduced to 250°. A vacuum is then to be applied until about 26 inches is reached, and while under this vacuum the creosote mixture is to be run into the cylinder at a temperature of from 175° to 260°, after which hydraulic pressure of not less than 200 pounds per square inch is to be maintained and raised until the individual blocks are treated throughout.

"The creosote oil is to conform to the following specifications when tested, as follows: The gravity at 68° Fahrenheit shall not be less than 1.12. When distilled in a retort with the thermometer suspended not less than one inch above the oil, it shall lose not more than 35 per cent. up to 315° Centigrade, and not more than 50 per cent. up to 370° Centigrade. The oil is to be free from adulteration; it must not be mixed with or contain any foreign material.

"The resin is to be solid resin obtained from pine. It is to be reduced to a fine dust by grinding and then incorporated with the hot creosote oil in a suitable mixing tank until the proper portions are secured.

"After treatment, the blocks are to show such waterproof qualities that, after being dried in an oven at a temperature of 120° for a period of 24 hours, weighed, and then immersed in clear water for a period of 24 hours and weighed, the gain in weight is not to be greater than 3 per cent. Fine drainings from the block shall be placed in a suitable extraction apparatus and the oil completely extracted therefrom with ether or carbon bisulphide. The oil so extracted shall be placed in a suitable still and distilled. The portion up to 120° Centigrade, consisting of the solvent, is to be collected apart. The oil shall then be distilled up to 370° Centigrade. The creosote oil thus obtained must conform in all respects to the above requirements.

"The engineer shall have tests and examinations made at the contractor's works of the materials and blocks proposed to be used, and reject any or all of such materials and blocks as he may consider not to be in compliance with the specifications."

The author revised these specifications by requiring that the mixture should contain *not more* than 75 per cent. of oil and *not less* than 25 per cent. of resin. That pine blocks should weigh as much as water, black gum blocks 59 pounds per cubic foot, and any other kind of wood at least 20 pounds per cubic foot more than the untreated. Also that the blocks should not absorb more than 3 1-2 per cent. of water after having been dried for 24 hours at a temperature of 100° F. He also changed the wording of the clause stating the exact method of treatment by making it general in nature, so that a contractor can use any method he pleases provided that he uses the proper material in proper quantity and produces a specification block. He was probably the first person to propose the absorption test, in which the preliminary drying was intended not only to drive off some of the contained moisture, but also to test the volatibility of the oil used, the idea being to subject it to a temperature which would produce a result equal to actual use. He believed that an absorption limit of 3½ per cent. was sufficiently severe.

He presented a table in which the salient points of the specifications of various cities are compared.

City	Mixture			Kind of Wood	Tests	
	Character	Lbs. per Cubic Foot	Sp. Grav. of Oil		Weight	Absorption
Boston	Creosote oil, 75%. Resin, 25%	20	1.12	Long leaf yellow pine; Southern black gum		3%
Borough of Brooklyn	Creosote oil, 50%. Resin, 50%	20		Long leaf yellow pine	Greater than w't'r	3%
Indianapolis	Creosote oil	20	1.12	Long leaf yellow pine		
Minneapolis	Creosote oil, 50%. Resin, 50%	16	1.09	Long leaf yellow and Georgia pine; Norway pine; Washington fir; Tamarac.		
Borough of Manhattan	Creosote oil, 75%. Resin. 25%	20	1.12	Long leaf yellow pine; Southern black gum; Tamarac.		3%

All these specifications require creosote oil and all but Indianapolis require something additional. Brooklyn's differ from the others by permitting, as a substitute for resin, "any other suitable waterproofing material." One contract was laid with material other than resin three years ago and the pavement has so far been satisfactory. While the specifications of Boston, Indianapolis and Manhattan call for an oil of specific gravity of 1.12, Minneapolis requires but 1.09, and nothing is specified in this respect by Brooklyn; the last, however, has not laid wood pavement for three years, during which time much information has been obtained upon the subject. All of the above allow long leaf yellow pine, three southern black gum; and Norway pine and tamarac are allowed by Minneapolis and Manhattan, the former permitting Washington fir also. Black gum, tamarac and fir, containing no pitch, should, it would seem, require different treatment than yellow pine.

The author considered the question of specific gravity of creosote oil as very important and refers to a test of evaporation made by the chemist of the Bureau of Highways of Manhattan, which was carried out as follows: Approximately 50 grams of each oil was placed in an open cylindrical vessel having a diameter of 3 inches and 1¼ inches high. The oil was then subjected to a constant temperature of 120° F. for a period of 50 days, the oil being frequently weighed, as shown by the table below. Four samples of oil were selected, two having a light specific gravity and two being heavy. These oils, when distilled, had the following constitution:

Creosote Oils: Specific Gravity	Distillate			
	To 315° C.	315° to 370° C.	Total to 370° C.	Residue
1.055	82.5%	8.5%	91.0%	9.0%
1.180	33.4%	13.4%	46.8%	53.2%
1.095	83.1%	8.5%	91.6%	8.4%
1.190	35.4%	10.9%	46.3%	53.7%

The amount in weight which these oils lost when maintained at 120° F. in the number of days indicated, is shown in the following table:

CREOSOTE OILS
Loss in Weight at 120° F.

No. of Days	First Specimen	Second Specimen	Third Specimen	Fourth Specimen
1	13.3%	6.2%	10.9%	3.8%
2	20.8%	9.1%	18.2%	5.7%
3	26.8%	10.7%	24.2%	7.4%
6	41.1%	13.3%	39.1%	9.9%
10	53.1%	16.0%	49.7%	12.7%
15	58.9%	18.1%	54.4%	15.0%
22	63.4%	19.1%	59.1%	15.8%
29	67.0%	19.6%	61.9%	16.2%
36	69.1%	20.3%	64.1%	16.7%
43	70.9%	20.8%	66.1%	17.3%
50	72.3%	21.2%	67.5%	17.6%

So-called creosote oil, with a specific gravity of 1.19, is an entirely different material from one with a specific gravity of 1.055; and it is questionable if, with the heavy oil, it is necessary to have the 50 per cent. of resin or any at all. In fact, a great many engineers contend that the addition of the resin is injurious rather than beneficial. The object of the resin, theoretically, is as much, if not more, to preserve the creosote oil and maintain it in the blocks as it is to act as any preservative itself. The author believes that with any of the non-pitch woods it would be impossible to meet the absorption requirements with so small an amount of oil as 20 pounds per cubic foot. A block of black gum which had been treated with 40 pounds of oil per cubic foot and then kept in an ordinary office temperature for a year or more was found to absorb less than 2 per cent. of water.

The 20-pound treatment will cost approximately 45 to 50 cents per square yard for the mixture, and if an additional 20 pounds are added to this, of course, increases the cost directly by that amount. So that, at the present prices, with the same treatment, black gum has an advantage over the yellow pine of about 45 cents per square yard, which difference, however, might be more than overcome by the durability, or rather lack of durability, of the wood under traffic.

The author called attention to the fact that the blocks would primarily lose in weight after treatment and it was therefore a question whether the tests should be made upon the street or at the works. Since the blocks would be required to stand atmospheric action for years to come, he believed that the test upon the street would not be unjustly severe. The test of sinking in water was required by the Brooklyn specifications more because this offered a quick test than for any other reason, and later investigations apparently indicated it was not necessarily reliable.

For Pure Food

The General Federation of Women's Clubs, through its pure food committee, headed by Mrs. Walter McNab Miller, Columbia, Mo., will endeavor to obtain improvement in the milk supply throughout the country and in the sanitary condition of markets and provision stores. Local health officers and milk and food inspectors will be appealed to by the affiliated clubs, and offenders prosecuted, if necessary. "White lists," a modified form of boycott, will be made out in each city, giving the names of those grocers and butchers who keep their floors and counters clean, their employes immaculate, and their goods screened from flies and dust.

MUNICIPAL PAVING REPAIR PLANT

First Annual Report of One in Operation at New Orleans, La.—Asphalt, Brick and Other Pavements Repaired and Constructed—Details and Cost of Plant, with Other Data

THERE has just been published the first Annual Report of the Municipal Repair Plant of the City of New Orleans, La. This repair plant includes an asphalt plant, with all its accessories, including street tools, furnaces, etc.; a stone crusher and storage bins; water tank and filter; warehouses, sheds, blacksmith shop, stable, office, store-room and landing bins; also a chemical and physical laboratory.

The asphalt plant was first put into actual use September 4, 1906. During the year this repair plant was used for the maintenance of 352,302 square yards of asphalt pavements, varying in age from four years and seven months to twenty-one years and eight months; in connection with which it placed 8,024 cubic feet of concrete, 23,682 square yards of naphtha coat, and 35,905 square yards of asphalt wearing surface. The materials for this repair work cost $15,278.58; the labor cost $7,177.21. To this should be added $11,090.35 of general charges and $6,760.69 of special charges, making a total cost of $40,306.83, or about 11.44 cents per square yard. The general charges include salaries, live stock, feed, light, power, water, office and stable supplies, hire of extra teams, lost and worn out tools, lost live stock and incidental expenses. The special charges include a proportionate part of one-half the cost of the chemist and supplies for the laboratory and the other expenses of maintaining the same; the other half being charged against the general engineering work of the city.

While a large part of the work of this repair plant was in maintaining the asphalt pavements, they also repaired brick, gravel and lake shell pavements and constructed new asphalt pavements, set curbing, street crossings, granite block pavements, and repaired concrete sidewalks. In constructing new asphalt pavements $37,589.16 was spent, and $31,347.12 was used in the other work.

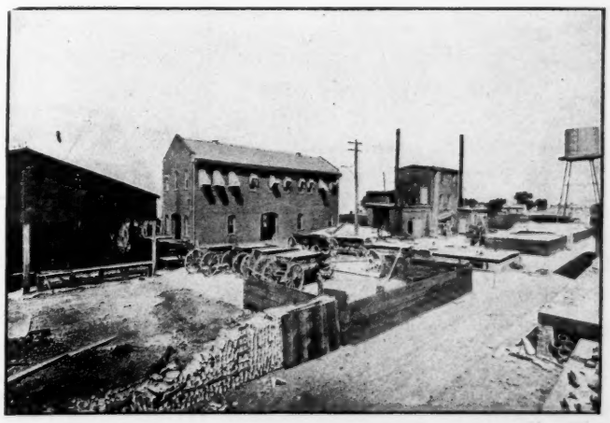
The plant worked every day in the year excepting Sundays, holidays and stormy weather, the asphalt plant having been operated 141 days and having turned out 88,947 cubic feet of wearing surface mixture, equivalent to 49,415 square yards of pavements two inches thick, the largest day's run having been 1,845 cubic feet and the smallest 45 cubic feet. There was not a single breakdown throughout the year.

The stone crusher, which, including all equipment, cost $1,966.20, has proved to be one of the best money saving parts of the plant. It turned out 1,143 cubic yards of crushed stone and old vitrified paving brick at a cost, for power and direct labor, of $533.40, or 46.66 cents per cubic yard. This material was employed in making concrete, filling holes and repairing shell and gravel pavements. Had it not been used, river gravel at $2.27 per cubic yard would have been purchased, at a total $2,061.28 greater than the cost of the equipment.

Mr. W. J. Hardee, the City Engineer, considers this repair plant has been a success for the following reasons:

Because it is the most complete and best equipped plant of its kind in the United States and arranged to operate at a minimum of cost. Because it is equipped with all the tools and skilled labor necessary to the economical repair or construction of all kinds of street and sidewalk pavements. During the past year it has repaired asphalt pavements, vitrified brick pavements, gravel pavements, shell pavements, small granite block pavements, square granite block pavements, artificial stone sidewalk pavements, culverts, and foot bridges; it has also constructed new asphalt pavements, new gravel pavements, new shell pavements, new artificial stone sidewalk pavements, new wagon bridges, and installed subsurface drains of various sizes. Because it affords a means of promptly caring for streets in cases of emergency. (Mr. Hardee recites one instance in which two streets, whose impassability made it impossible to reach certain docks, were graded and surfaced and in use twenty-four hours after instruction was given by Council.) Because the city gets the direct benefit of all old street paving materials, which, heretofore, have been lost to it. In general these materials are as serviceable for reuse as new materials. The old materials that were reused during the year would have cost $2,985 if purchased new. Because, incidentally, unpaved streets are improved; old concrete, old asphalt, and sound earth resulting from the repair and construction of pavements being deposited in holes and depressions on the nearby streets. Because the City Council has been inspired to bring about a number of minor but highly desirable improvements that would not have been undertaken through the usual contract routine. Because all our asphalt pavements have been continuously maintained in excellent condition and at a very much less cost than would have been the experience under the bid of the Barber Asphalt Paving Co., which is all the more remarkable when it is remembered that not only were 55,076 square yards more of pavement maintained, because of the further expiration of contract maintenance, but that the work was done fourteen months later, at which time the repairs were unquestionably more extensive because of the much longer time the pavements had been neglected. Because it cost an average of 11.44 cents per square yard for all pavement, to repair our asphalt pavements, as against an average of 38.52 cents per square yard which it would have cost under the bid of the Barber Asphalt Paving Company, making a saving of $74,193.17, which is $8,184.35 more than the entire municipal repair plant cost.

In the above-named costs no allowance is made for interest, depreciation, lost taxes, etc. The total investment of the city in this plant was $70,583, to which should be added the value of the lots on which it was placed, say about $10,000. Interest and lost taxes of 7 per cent. on this gives $5,640. Depreciation, figured at 10 per cent. on the structures ($48,365) and 20 per cent.



MUNICIPAL REPAIR PLANT—LOOKING EASTWARD

on the equipment ($22,218), gives $9,280; a total for all of $14,920. Apportioning this relative to the total amount of work done gives about $5,200 to be added to the cost of asphalt repairs. The cost of materials, labor, general charges, etc., amounted to $40,306.83. Adding the $5,200 gives the average cost per square yard of all paving under maintenance as 12.92 cents; still only about one-third of that bid by the Asphalt Company. Comparisons of costs of maintenance in different cities are absolutely worthless unless the conditions of unrepair are the same. In this case, however, the city had received, in June, 1905, bids from two companies for maintaining the asphalt pavements, as follows:

	1st Year.	2d Year.	3d Year.
Louisiana Improvement Co...	$220,000	$30,000	$30,000
Barber Asphalt Paving Co..	114,500	40,000	40,000

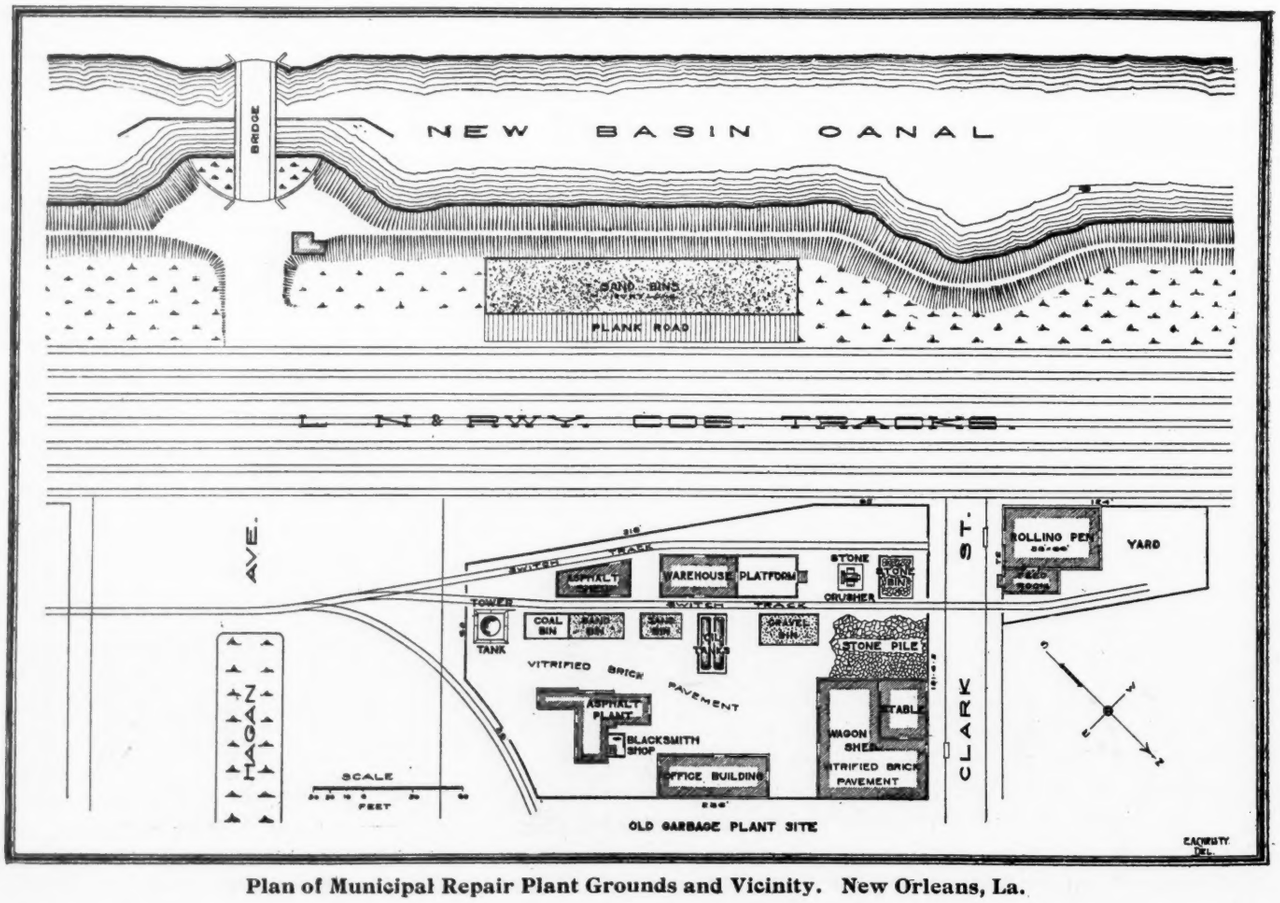
The cost to the city for the first year was about $45,500. The total cost of all the plant and equipment, and the materials and labor for performing the asphalt repair work was $120,906, or only $6,406 more than the lower bid for the repair work, from which it would appear that the plant is certainly a paying investment.

Mr. Hardee expresses his appreciation of the fact that both the local asphalt companies loaned the city, without charge and for weeks at a time, street tools, the order for which was not filled on time by the manufacturers; also building materials when these ran short through delayed deliveries. These were the companies which had previously bid for the maintenance of the asphalt streets.

In both repairing old pavements and constructing new, a naphtha coat was employed instead of so-called binder, the engineer believing that it was not only much cheaper but also more substantial and durable. He believes that binder formed of gravel and asphaltic cement, which has been used in New Orleans, loses its asphalt within three to five years, becoming merely a dry and inadhesive rolling mass between the concrete and wearing surface. "Theoretically, binder may appear to be a good thing, and probably is when a hard stone aggregate is employed, but when gravel is employed as an aggregate, as is usual in this city, this, in my opinion as I have stated, is a positive failure." The naphtha coat used was formed of vaporized gasoline and asphalt mixed in equal proportions and put on the concrete foundation when this is perfectly dry, by hand brushes, as paint would be, to the least possible thickness. This is believed to be practically impervious to moisture and to prevent the moisture ordinarily present in concrete foundations in New Orleans from reaching, by capillary attraction, the asphalt wearing surface and rotting it. It also effects a strong union between the wearing surface and the concrete foundation, and prevents the former from creeping in warm weather.

Description of Plant

This plant was placed on a lot 175x260, which was already owned by the city and had been occupied by an abandoned garbage-rendering plant. The asphalt plant consists of a building having brick walls, with floors and roofs of concrete supported by steel beams. The boiler and engine section is one story high, the dryer section

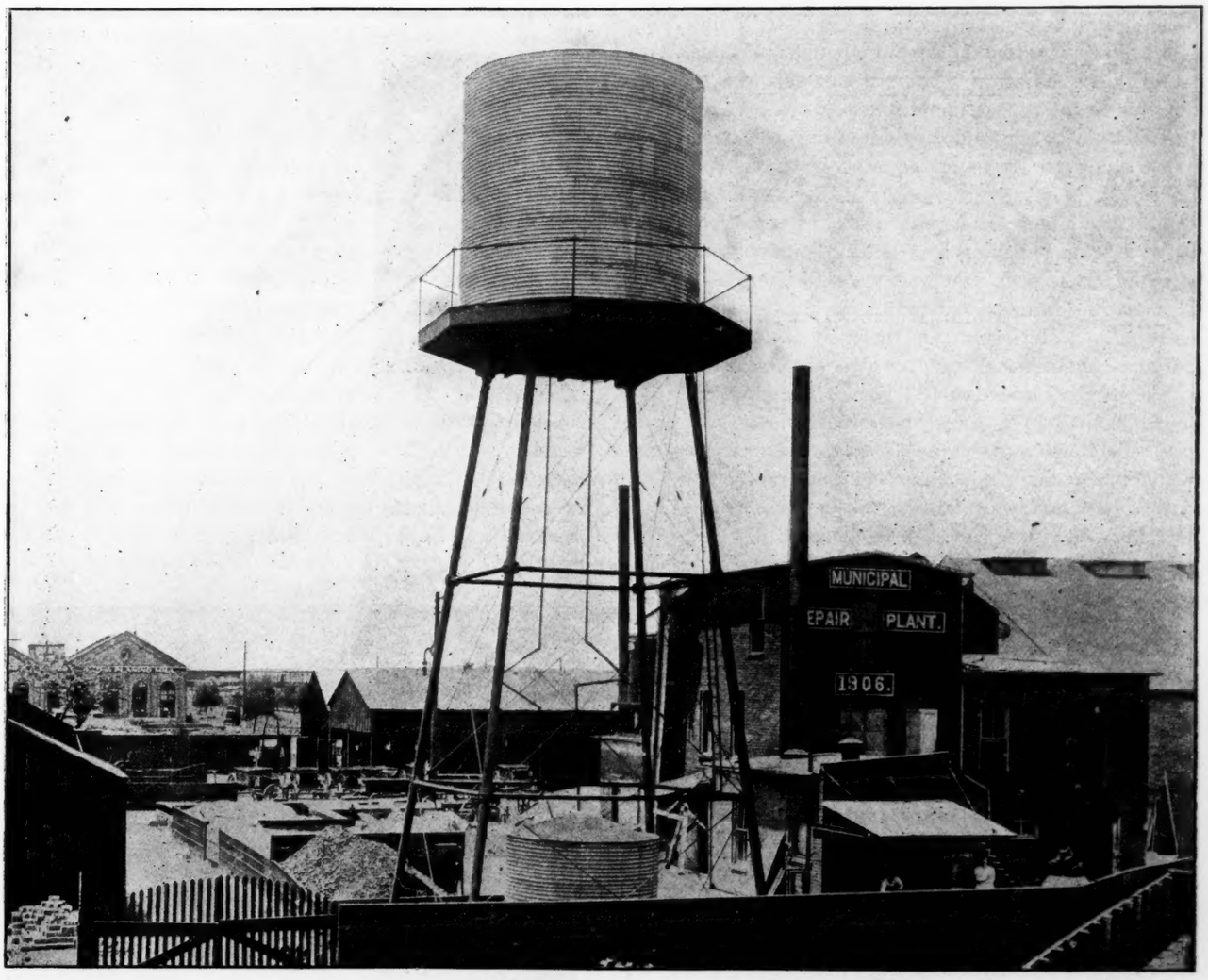


Plan of Municipal Repair Plant Grounds and Vicinity. New Orleans, La.

and that containing the asphalt melting tanks are two stories high, and that containing the bins for sand and mineral dust and the mixer is three stories high. The boiler and engine are rated at 135 horsepower, the engine being of the center-crank type, 10x15 cylinder, with a plain slide valve. Compressed air for agitating the melting asphalt, and for forcing the fluxing oil from the storage tanks to the weighing tank, is supplied by a 9½x13 Westinghouse air compressor, which has a capacity of 50 feet of free air per minute. The dryer is of the self-contained type; it has a revolving cylinder 40 inches in diameter and 19 feet 6 inches long, and contains 19 square feet of heating surface, effected by a brick wall furnace beneath the dryer. A 40-inch Sturtevant exhauster furnishes induced draft. An endless chain bucket elevator, with an inclination of about 45 degrees, loads the dryer with sand or stone, its lower end resting on the yard pavement about 10 feet outside of the building.

At the discharging end of the dryer is a similar elevator rising almost vertically, which delivers the hot sand and stone to the bins. The screening room is formed of corrugated iron, with tight-fitting joints, to prevent the escape of dust and heat, and is equipped with a revolving sand screen two feet in diameter by three feet length of effective screening surface, formed of No. 8 wire cloth made of No. 18 bronze wire, which may be removed to allow the hot stone to be discharged directly into the bin. The bin is formed of riveted and bolted steel sheets 5/16 of an inch thick, and is shaped like an inverted cone, with a capacity of 10 cubic yards when level full. It is equipped with partitions for handling different sizes of stone in preparing bitulithic paving. Its lower end has a measuring box, situated immediately behind the mixer. The measuring box has a capacity of 9 cubic feet and is equipped with a dumping bottom to provide rapid discharge into the mixer. It rests on platform scales to provide for accurately weighing each batch of material.

There are two 6,000-gallon tanks for storing fluxing oil, each 6 feet 6 inches diameter and 25 feet long, formed of 5/16-inch riveted steel sheets. Each is equipped with heating coils, compressed air connection, vent, 1½-inch pop safety valves, blowing off at 10 pounds pressure, discharging connections and a 6-inch diameter nipple at the top for loading. To minimize fire risk as well as to improve unloading facilities, these tanks were placed about 30 feet from the main building and 8 feet from the



Municipal Repair Plant—Looking Westward

tracks, and receive the fluxing oil by gravity from the tank cars. They are located in a vault having a concrete floor, brick walls and wooden roof. A 3-inch pipe leads from these tanks to the weighing tank inside the asphalt plant. This weighing tank is 42 inches diameter by 51 inches high, holding 250 gallons of oil. This is so connected to the platform scales that each load may be accurately weighed. It is near and above the asphalt melting tanks and discharges by gravity through a pipe directly into these.

There are three asphalt melting tanks, each 108 inches by 60 inches by 52 inches, having a capacity of 5,000 gallons each when level full. They are of 5/16-inch riveted steel set in brick masonry, their tops level with the second-story floor, and each surrounded by a gas pipe hand railing. Under each tank is an individual brick masonry furnace with fire door and smoke stack. In each tank are compressed air pipes for agitating the asphalt.

For transferring the asphalt from the melting tank to the mixer a pipe is used, operated by compressed air, the material being first weighed in a weighing bucket.

The mixer is of the ordinary type having a capacity of 1,000 pounds of wearing surface or 1,200 pounds of binder per batch. The discharge chute from this ends 7 feet above the ground floor, so that wagons may drive immediately beneath it. There was later added a mineral dust bin at the top of the building and a bucket elevator just outside of the same for conveying the dust; also a metal chute for transferring dust from the bin to the mixer.

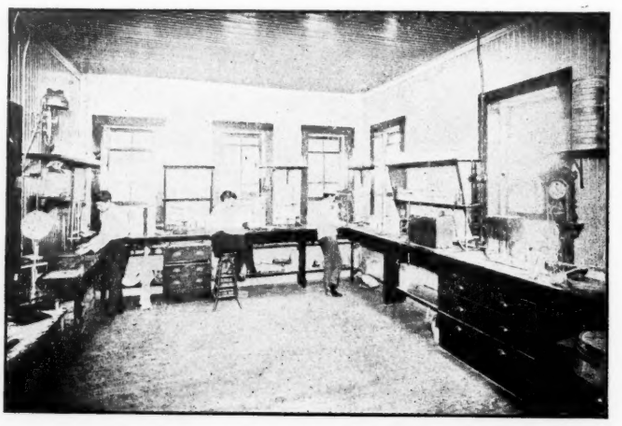
The water tank is of galvanized iron 12 feet diameter by 13 feet high, having a capacity of 13,000 gallons, and elevated upon a four-legged steel tower 38 feet high. The water for this is first filtered, and is used for the boiler, for watering stock, washing vehicles and other purposes about the plant.

The stone crusher is a Reliance crusher, equipped with four sets of toggels for crushing stone into six different sizes. It is driven by a Westinghouse 20-horsepower induction motor, which also drives an endless-chain bucket elevator, by which the crushed stone is lifted 24 feet into the storage bins. This motor also drives the rattler in the testing laboratory and some of the blacksmith's apparatus. The storage bin is 21 feet by 14 feet 6 inches, and has a capacity of 65 cubic yards.

The street tools consist of one universal 8-ton steam asphalt roller; one 3½-ton steam asphalt roller; one 1,000-pound iron hand asphalt roller; one four-wheel fire wagon for heating tamping and smoothing irons; one 2-wheel 100-gallon mixing kettle; 18 asphalt tamping irons; 15 asphalt smoothing irons; 66 asphalt axes; 107 picks; 18 mattocks; 102 long-handled shovels; 40 short-handled shovels; 24 iron frame and bed wheelbarrows; 6 axes; 200 lineal feet of one-inch wire-wrapped rubber hose; 6 sledge hammers; 8 chisels of various sizes; 10 crowbars, and a number of small tools of various kinds. Total cost, $5,492.37. The plant tools, in addition to the 134 of various kinds furnished with the asphalt plant and necessary for its operation, consisted of a Fairbanks platform scale on rollers; a four-wheel, 3-foot 10-inch by 2-foot 10-inch Fairbanks wagon hand truck; 12 iron frame and bed wheelbarrows; 6 short-handle shovels; 12 long-handle shovels; 10 axes; 6 picks; 8 crowbars; 8 sledge-hammers, assorted sizes, and a number of small tools. The rolling stock consisted of 10 Watson four-wheel two-yard asphalt dump wagons; 8 one-yard single-mule dump carts; 2 Tennessee four-wheel wagons, 4,000 pounds capacity each; 1 four-wheel float dray with 5-inch tires, with capacity of 6 tons, and 1 four-wheel single-horse storm buggy. Each wagon and cart is equipped with a canvas cover. The live stock consist of 17 mules and 3 horses, the mules being used in wagons and carts and the horses in buggies. There are six sets of double wagon harness, ten sets of single cart harness and two sets of single buggy harness. It will be seen that there are more wagons and carts than there are mules to work them, the reason being that all the carts will be required only in emergency, and, though teams with harness may be readily hired by the day, suitable rolling stock is not obtainable.

DRAY AND DUMP CARTS

DUMP WAGONS, HAND ROLLER, FIRE WAGON, ETC.



CHEMICAL AND PHYSICAL LABORATORY

The laboratory consists of a chemist's office 16 feet by 8 feet, a cement room 8 feet by 10 feet, and a general work room 16 feet by 22 feet, all connected by doors. The cement room contains stationary wash-stands, Fairbanks weighing scales, marble cabinet for mixing briquettes, brass briquette moulds, 1,500 Gramm hammers for compacting cement briquettes, and three tiers of galvanized iron troughs, 78 inches by 36 inches by 5 inches, for immersing briquettes. The general room is equipped with a Lynn sandstone filter, capacity 100 gallons per day, Fairbanks cement-testing machine, Fairbanks platform scales and several pairs of small scales, large, well-ventilated flume closet, drying ovens, water-distilling apparatus, Vicat needle for determining cement setting, and a Dow needle for determining penetration of asphalts, United States oil tester, N. B. M. rattler for abrasion test, Wiley extraction apparatus, and the necessary platinum crucibles, tubing, flasks and other chemical apparatus.

This laboratory equipment cost approximately $1,860, $370 worth of which has been used since 1901 by the Sewerage and Water Board and the City Engineer, the old apparatus being removed to the new location and incorporated with the new laboratory. This laboratory, in addition to the large amount of work it does for the repair plant, also tests and analyzes a very large amount of materials for the Engineering Department. Every shipment of cement entering into the municipal public works is tested, and from one to three samples of asphalt wearing surface are taken daily from pavements under construction.

Cost of Plant

In advertising for bids for furnishing and erecting an asphalt plant it was believed, because of patented apparatus, copyrighted systems of arrangement, etc., that the widest competition would be attained if bidders were required to themselves design and designate all parts of the plant they proposed to furnish and erect, and submit the same with their bid, rather than for the city to prescribe a definite plan. General specifications, however, were prepared designating the character and capacity of the plant desired and the general feature of its larger elements. The Warren Bros. Asphalt Paving Co., of Cambridge, Mass., were the only bidders, and their bid of $16,700 was accepted on August 28, 1905. The plant has since then been altered and extended at a cost of $2,736.50, by placing heating coils in the melting tanks, a pipe from there to the mixer and a pump.

The tower tank and filter cost $1,330.38. A stable, rolling bin and wagon shed cost $5,310.92; stone crusher and storage bin, $1,966.20; office and storeroom building, $5,509.26, and fences, track sidings, drains, water pipes, sheds, bins and other structures and appliances brought the total cost up to $48,365.37. At the same time $6,197.37 was spent for live stock, harness and stable equipment; $3,180.10 for rolling stock and equipment; $836.51 for plant tools; $5,492.37 for street tools; $447.15 for office furniture, and $1,489.82 for laboratory equipment, a total for equipment of $17,643.45, or a total investment of $66,008.82. Subsequent to this there was purchased a seven-ton steam road roller, a road-grading machine, sprinkling wagon, horses, plows, scrapers, etc., amounting to $4,704.49.

Supplies

Bids were requested for furnishing the various supplies required and the following prices were in this way obtained: Lake Shore sand, 90 cents per cubic yard on board barges moored at the repair plant landing; river sand, $1.50 per cubic yard delivered at the same place; pulverized lime stone, $5.50 per ton on board cars at the repair plant switch track; washed river gravel, $2.27 delivered on switch track; "Brilliant Nut" screened coal on switch track, $2.75 per ton.

Special pains were taken in connection with obtaining the refined asphalt, and the bids received are given in the table at the foot of the page.

Bidders were required to guarantee the number of square yards of wearing surface, two inches thick after being rolled to the ultimate compression with an eight-ton steam roller, which a net ton of the asphalt they proposed to furnish would lay when converted into a paving mixture containing not less than 9½ per cent. bitumen. Also to guarantee the percentage of moisture at both 105° and 150° centigrade; the specific gravity; the percentage of bitumen soluble in Pennsylvania petroleum naphtha boiling between 80° and 90° centigrade, and the percentage of non-bituminous organic matter; also the most suitable flux to use with their asphalt. The price is per net ton, exclusive of package weight, and includes delivery of the

ABSTRACT OF BIDS OPENED ON MONDAY, JUNE 25th, 1906, FOR FURNISHING REFINED ASPHALT FOR ONE YEAR

Name of Bidder	Address	Commercial Name of Asphalt	Moisture at 105° C. Per Cent.	Moisture at 150° C. Per Cent.	Specific Gravity	Bitumen Soluble in Pennsylvania Petroleum Naphtha, Boiling Between 80° and 90° C. Per Cent.	Non-Bituminous Organic Matter, Per Cent.	Guaranteed Square Yards	Price Per Ton	Most Suitable Flux
The Barber Asphalt Pav. Co.	205 Chartres St., N. O., La.	Trinidad Lake Specially Refined Asphalt.	0.0 to .5	0.0 to 5.0	1.20 to 1.26	65 to 70	3.0 to 6.0	95	$28.80	Texas Maltha
The Barber Asphalt Pav. Co.	205 Chartres St., N. O., La.	Genasco Refin'd Asphalt.	0.0 to 0.23	0.0 to 3.0	1.00 to 1.03	63 to 67	0.0 to 1.0	138	35.00	Texas Maltha
Warren Asphalt Pav. Co.	Cambridge, Mass.	Acme Refined	.0 to .0	1.0 to 1.5	1.0365	82 to 85	.01	100	26.50	Acme Maltha
The A. L. Barber Asphalt Co.	17 Battery Place, New York City	Bermuda Lake Refined Asphalt.	About 1 to ½.	About 1 to ½.	1.08 to 1.085	67 to 72	.02 to .025	98	29.90	Texas Petrol'm
Union Oil Co., of California	San Francisco, Cal.	Maltha Brand, California Refined Asphalt.	None.	None.	1.055 to 1.065	65 to 70	0.5 to 1.0	100	18.50	Texas
Globe Asphalt Co.	405 Bakewell Bldg., Pittsburg, Pa.	Obispo Refined Asphalt.	0 to 7-10 of 1.	7-10 of 1 to 95-100 of 1.	1.047 to 1.062	65 19-100 to 67 27-100	Trace to 22-100 of 1.	150	25.10	Obispo

asphalt in the repair plant yard. No asphalt would be considered that had not been known by its commercial name for at least two years, and been laid in at least 10,000 square yards of street pavements. By applying the value of the required quantity of the most suitable flux for each asphalt to the price bid for each, it was determined that the bid of the Union Oil Company of California was the lowest, and it was accepted, this bid amounting to a small fraction of a cent less per square yard for asphalt and flux oil than the bid of the Globe Asphalt Company.

The cost of the raw materials, that is, asphalt, fluxing oil, sands, mineral dust, and naphtha necessary to construct 1 square yard of asphalt "wearing surface," with "naphtha cost," on the basis of 16 2-3 per cent. shrinkage in compressing by steam roller, was 39.13 cents.

MUNICIPAL BOND SALES

Data Concerning Sales of Municipal Bonds During September by Cities of Less than 100,000 Population—Financial Statistics of Cities Listed

Name of City	Estimated Population	Actual Value of Assessable Property (estimated)		Ratio of ass't to actual value	Bonded Debt	Sinking Fund	Net Bonded Debt		Tax Rate per $1,000 Ass'd Value	Bond Sales, Sept., 1907				Basis
		Total	Per Capita				Total	Per Capita		Term of Years	Amount	Interest	Price	
Santa Barbara, Cal.										1-40 ser.	$50,000	4½%	100.10	4.47
Elgin, Ill.										5-24 ser.	100,000	5%	Par	
Rockford, Ill.										15	36,000	4% s.a.	Par	
Westfield, Ill.										1-2 ser.	2,000	5%	Par	
Westfield, Ill.										2-3 ser.	2,000	5% s.a.	Par	
Durant, I. T.	6,000	$2,000,000	$333	.66⅔	$135,000	$5,000	$130,000	$21.66	$20.00	20	35,000	5%	Par	
Tulsa, I. T.	12,500	8,000,000	640	.65	155,000	12,000	143,000	11.44	20.00	20	50,000	5%	Par	
Nichols, Ia.										5-12½op.av.	3,300	5% s.a.	Par	
Pottawattomie, Ia.										5-14 ser.	25,585	6% s.a.	102.708	5.629
Emporia, Kan.	10,000										10,000	5%	Par	
Hutchinson, Kan.	15,000	12,000,000	800	.20	180,000		180,000	12.00	70.00	5½ avg.	18,790	5% s.a.	Par	
Topeka, Kan.	47,400	50,000,000	1,055	.25	2,162,841	None.	2,162,841	45.62	38.70	10	82,689	5% s.a.	Par	
Wellington, Kan.											25,000	4½%	Par	
Maysville, Ky.										20	30,000	4%	Par	
Lewiston, Me.										30	174,000	5% s.a.	Par	
Dowagiac, Mich.										20-20 ser.	53,250	4%	104.81	3.70
Escanaba, Mich.										1½-5½ ser.	38,500	6% s.a.	Par	
Hancock, Mich.	10,000	10,000,000	1,000	.22	113,000		113,000	11.30	12.50	20	50,000	5% s.a.	Par	
Jackson, Mich.										15 avg.	115,000	4%	101.50	3.867
Cloquet, Minn.										2-11 ser.	50,000	5% s.a.	Par	
Fairfax, Minn.											8,000	4%	Par	
Farmington, Minn.										1-14 ser.	7,000	5% s.a.	100.714	4.885
Jackson, Minn.										5	5,000	6% s.a.	101.80	5.565
Madelia, Minn.											10,000	4%	Par	
Winnebago, Minn.										6-20 ser.	15,000	5½%	100.66⅔	5.178
California, Mo.										10-20 opt.	10,000	5½%	104.80	4.886
Carterville, Mo.										10-20 opt.	10,000	5½%	104.80	4.886
Sarcoxie, Mo.										5-20 opt.	10,000	5%	100.60	4.86
Jackson, Miss.										20	216,000	6% s.a.	109.30	5.243
Bozeman, Mont.										10-20 opt.	25,000	5% s.a.	Par	
Cohocton, N. Y.										1-8 ser.	2,000	5%	Par	
Ithaca, N. Y.	15,000	15,000,000	1,000	.55	574,000	None.	574,000	38.27	15.80	5-20	3,000	5%	102.22	4.50
										5-20.	54,000	5%	101.05	4.75
Kingston, N. Y.										1-5 ser.	25,000	4%	Par	
Little Falls, N. Y.	12,250	4,425,740	361	.65	370,000		370,000	30.03	17.82	1-5 ser.	10,000	5%	100.10	4.064
Little Valley, N. Y.	1,400	1,000,000	714	.40	35,500	11,500	24,000	17.15	10.16	5-20 ser.	10,000	5%	100.425	4.062
Lockport, N. Y.										14¾ avg.	60,000	5%	101.344	4.87
										1-5 ser.	12,000	4.95%	Par	
Newburgh, N. Y.	26,500	25,000,000	943	....	585,899.97	14,269.70	571,630.27	21.57	22.40	1-20 ser.	80,000	4½%	100.37	4.455
New Rochelle, N. Y.	27,000	24,000,000	889	....	1,772,017		1,772,017	65.63	24.62	14 avg.	50,000	5% s.a.	103.03	4.701
										13½ avg.	25,000	5% s.a.	102.52	4.745
										5 avg.	18,000	5% s.a.	100.28	4.036
										10½ avg.	32,136	5% s.a.	101.678	4.704
White Plains, N. Y.	14,500				1,307,060		1,307,060	96.35	10.51	5	38,000	5% s.a.	100.084	4.08
Yonkers, N. Y.	68,000	60,019,750	883	....	5,018,682	299,600	4,719,082	69.40	24.48½	35½ avg.	70,000	4½ s.a.	104.698	4.242
Arlington, O.										10-24 ser.	12,000	4% s.a.	Par	
Bellaire, O.										10	10,000	4½% s.a.	102.29	4.217
Bellevue, O.										6-17 ser.	10,000	5%	100.25	4.071
Carrollton, O.										1-10 ser.	18,240	5% s.a.	101.505	4.656
Chillicothe, O.										8¾	5,000	4% s.a.	100.70	3.903
Fostoria, O.										17	5,000	4% s.a.	Par	
Hamilton, O.	30,000	22,000,000	733	.50	1,064,505	54,684	1,009,821	33.66		1-10 ser.	27,707	4½% s.a.	100.707	4.335
										1-10 ser.	8,773	4½% s.a.	100.604	4.374
Lakewood, O.	10,000	12,000,000	1,200	.37	1,073,044	100,504	072,900	97.29	35.95	1-5 ser.	5,200	5% s.a.	100.346	4.875
Lisbon, O.										1-10 ser.	7,300	5%	102.082	4.567
Mansfield, O.										1-5 ser.	1,400	4% s.a.	100.088	3.068
Mendon, O.										1-10 ser.	17,500	5% s.a.	102.008	4.582
Middletown, O.	10,000									1-10 ser.	1,120	4% s.a.	100.088	3.082
Newark, O.										2 5-6 avg.	4,050	5% s.a.	100.425	4.823
										5 avg.	5,000	4½%	100.64	4.355
Pioneer, O.										1-5 ser.	3,500	5% s.a.	105.714	2.005
Reading, O.										20	8,200	5% s.a.	107.00	4.467
Silverton, O.										25	7,600	4½% s.a.	Par	
Springfield, O.	48,000	35,000,000	720.17	.20	1,014,827		1,014,827	21.14	27.30	1-5 ser.	24,041	5%	101.180	4.571
Tiffin, O.	12,000	10,500,000	875.00	.40	504,700	12,500	492,200	41.02	24.00	15	25,000	4% s.a.	100.702	3.93
Woodsfield, O.										1-10 ser.	5,041	5% s.a.	100.773	4.838
Youngstown, O.	60,483	56,882,000	940.45	.50	1,260,112	209,167	1,050,945	17.25	29.42	2-6 ser.	13,200	5% s.a.	102.261	4.378
										2-6 ser.	15,165	5% s.a.	102.105	4.306
Zanesville, O.	33,000	33,000,000	1,000	.33⅓	663,029.17	66,518.25	596,511	18.08		1	11,500	5% s.a.	100.06	4.04
Ripley, Tenn.										10-20 opt.	7,500	6% s.a.	Par	
Cashmere, Wash.	600	405,000	675	.33⅓	None				7.50	20	13,200	5%	Par	
Colville, Wash.										1-20 opt.	6,000	5%	Par	
Lind, Wash.	700	360,000	514	.60	15,000		15,000	21.42		20	23,000	4%	Par	
Elkins, W Va.	6,000	10,000,000	1,666	.50					3 00	20-25½ op. avg	10,000	5%	Par	
West Salem, Wis.	900	800,000	889	.75	14,000	None.	14,000	15.55	15.00					

MUNICIPAL JOURNAL AND ENGINEER

A. PRESCOTT FOLWELL, EDITOR

Published every Wednesday

By Swetland Publishing Company
Flatiron Building, Madison Square
New York City

H. M. Swetland, Pres. J. T. Morris, Treas. F. P. Burt, Secy.
G. E. Sly, Advertising Manager
M. C. Robbins, Western Manager, 836 Monadnock Block, Chicago, Ill.

Telephone, 6723 Gramercy, New York

SUBSCRIPTION RATES

United States and possessions, Mexico, Cuba . . . $3.00 per year
All other countries . . . . . 4.00 per year

Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

Readers are invited to contribute to the MUNICIPAL JOURNAL AND ENGINEER, either in the form of special articles or of letters discussing matters of current interest.

It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

NOVEMBER 6, 1907.

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Facilitating Complaints

THE Municipal League of Los Angeles, Cal., has adopted a plan which, it seems to us, might well be copied by other Municipal Leagues and Civic Societies and even by city departments. This is, to send postal cards to a certain percentage of the residents in various parts of the city, the names of those to receive cards in any particular section being selected at random, with a request that the cards be used for making complaints and suggestions as to possible improvements in the details of the city housekeeping. This would seem to serve the double purpose of giving information concerning delinquencies on the part of city employees, and of compelling "knockers" to give their complaints a concrete form, which in many cases would probably result in their admitting that there was really little foundation for any complaint at all. The returns at Los Angeles were not nearly as numerous as was expected, which would appear to indicate that there were few well-founded complaints to be made against the municipal departments, since the cards contained the necessary stamp, and to make the complaint required merely the stating of it upon the same, Surely no citizen having any fault to find which appeared to him at all serious would shrink from the trouble involved in this, and no answer means practically no complaint.

The matters concerning which complaints were requested would probably vary in different localities. In Los Angeles these were: "Is your street kept in good order? Is it properly sprinkled? Is the garbage collected regularly? Any serious nuisance in your neighborhood? Any ordinance being violated in your neighborhood? What do you think of the present government?" A space left for general suggestions brought forward recommendations for better light, more fire hydrants, rubbish receptacles, drinking fountains, billboard regulations, etc. In most cities the police are expected to report violations of ordinances and insufficiency in certain services—such as outages of street lamps—but there are certain ones which the police cannot know about, such as failure to collect garbage and ashes; and the police themselves may be blind to many matters which require attention.

Perhaps the first objection to this plan which will be raised is that it will result in a very large increase in the complaints against the city government, which in most cities are already a source of great annoyance to the officials who feel, in many cases with justice, that they are very largely undeserved. The experience of Los Angeles would seem to indicate that this fear is groundless; and we believe that if a department would indicate, by asking for suggestions, its desire to keep the service which it renders up to a high standard, and satisfactory to citizens, it would find a large percentage of them willing to turn from complainers to co-operators. The cost of this need not be very considerable. If cards were sent to every fifth family in each district of a city of 30,000 population this would require about 1,000 return postal cards, costing $20; and the addressing should not cost more than $2 additional. The filing of replies could be done by the regular clerical force at times when other work is not pressing.

A Contractor on Guarantees

A PAVING contractor of Hamilton, O., W. N. Andrews, in a discussion before the American Society of Municipal Improvements, stated that he believed that "a contractor does not object to the so-called long-time guarantees, if he gets enough money for his work. Surety companies are exacting in the way of collateral, demanding as much as twenty-five per cent. of the original cost price on ten years' maintenance bonds, which very materially adds to the cost of the work. City authorities could save this extra cost if they would employ competent experts to lay out their streets and supervise their construction, as they do when they build a sewerage or water works system. No contractor, if he is honest with himself, objects to intelligent inspection of his work. However, he does object to having placed over his work an incompetent

person, who in many instances is the owner of property on the street to be paved, who does not know the first thing about his duties, and tries to make a reputation for himself at a contractor's expense.

"A year ago this summer, at the writer's suggestion, the city of Green Bay, Wis., after contracting for about two miles of asphalt paving, employed a consulting engineer to recommend a suitable mixture, embodying the use of a good asphalt, for the surface material, and furnish a competent person to supervise the work and see that instructions were carried out. The result was, we were pleased to be relieved of the responsibility connected with obtaining the proper mixture, and the city authorities felt they were getting what they paid for and were satisfied. This work, after passing through a rather severe winter, in that there were many radical changes of temperature (which is hard on asphalt pavements), is in perfect condition, the best evidence of which is that the city is converted to the use of asphalt as a paving material, and have let a large amount of new work this year and expect to let more next year. This inspection cost the city less than two cents per square yard, and personally I believe the pavements will last many years and never cost us a cent for maintenance. This city has not only learned the value of expert knowledge, but it has learned how to care for an asphalt pavement, which will go a long way toward preserving its life.

"Guarantees on street pavements no doubt grew from the overzealous desires of manufacturers of new forms of permanent pavements to back up their representation of durability and usefulness with agreements to keep them in repair for a period of years. This is as absurd when applied to street pavements as it would be were the durability of the materials in a building, or its construction, guaranteed for a period of ten years.

"Courts have repeatedly held that it is only the proper use of the street as a roadway that is guaranteed, and if it can be shown that other causes contributed to the destruction of the street under guarantee, no recovery on the part of the city can be had. If there is any question about the enforcement of guarantees for paving, and there always is, why place upon the legal department of a city any additional burden which should have been assumed in the first place by the engineering department?

"I do not believe there is a contractor in the country who does not favor closer inspection and doing away with guarantees, and I cannot help but believe that cities would profit by it very materially in the end."

Many city officials having charge of street paving are coming to believe in short-term guarantees or none at all. Even those who do not almost invariably complain of the difficulty of compelling contractors to repair pavements promptly. Repairs during the first year after completion will almost invariably be due to defects in construction, and most of such defects will appear in that time; a one-year guarantee would therefore insure good construction without involving increased cost for maintenance.

WISCONSIN PUBLIC UTILITIES LAW

Review of Its Important Features—Provisions for Valuation Important—Indeterminate Permits—Powers of the Commission

By ERNEST L. BRADFORD,

Formerly Fellow in Political Science, University of Pennsylvania.

The important features of the new Wisconsin Public Utilities Law, approved July 9, 1907, are:

(1) It gives to the State Railroad Commission the supervision of municipal public utilities.

(2) It provides for the issue of "indeterminate permits" under which utilities may hereafter operate, in lieu of the present system of franchises.

(3) It provides for a *valuation* of the property of municipal public service concerns.

(4) It gives the Commission the power to fix all rates, to classify the kinds of service, to determine the units of service, and the adequacy of supply, and in general to determine all questions relating to the control and supervision of *both municipal and private* public service plants, subject to review by the courts.

Section 1797 m-2 vests the Railroad Commission "with power and jurisdiction to supervise and regulate every public utility in this State and to do all things necessary and convenient in the exercise of such power and jurisdiction." To the Commission is given authority (Sec. 1797 m-17 [1], and ff.) to fix rates and charges, change rates, prescribe uniform accounts to be kept by municipalities and companies alike, fix the unit of service (as the kilowatt-hour for electricity, thousand cubic feet for gas, etc.) and investigate complaints. The term "every public utility" repeatedly used in the act includes both companies and cities, towns and villages which operate public service plants. Privately owned and publicly owned utilities are placed on the same footing.

Every public utility must render adequate service, at a reasonable charge (the Commission to determine the adequacy and the reasonableness, after a public hearing) (Sec. 1797 m-60 [1]); it must furnish reports to the Commission and file a schedule of all rates and tolls charged in the State. Discrimination in rates is prohibited.

The need for a proper allowance for depreciation is met by the provision in Sec. 1797 m-15 [1], in which the Commission is authorized "to ascertain and determine the proper and adequate rates of depreciation of the several classes of property of each public utility," and to "provide for such depreciation in fixing the rates, tolls and charges to be paid by the public."

An important and far-reaching provision is that which says: "The Commission shall *value* all the property of every public utility actually used and useful for the convenience of the public." In making up this valuation, it may use any information in the hands of the State Board of Assessors, and may hold public hearings, notifying the public utility. Valuation is a most effectual means of settling the question of rates. The courts have held

that a concern is entitled to a reasonable profit—a fair return on the capital invested. If the stock is watered heavily, high rates must be charged to afford even a small per cent. above the expenses of operation and maintenance. Once the plant is valued, however, and the capital investment actually determined, a basis is fixed on which to calculate all future dividends. It is the same principle applied to city utilities as that of the physical valuation of railroad property, advocated strongly by Senator La Follette, of Wisconsin, and recognized by the present administration as a most important step in governmental regulation. Dividends computed on the ascertained value of the property, not on an inflated capital stock, are fair. Moreover, in case the city desires to purchase the gas plant or electric station, it has adequate knowledge of the amount the plant is worth; and it will be neither heavily overcharged, nor pay the company less than the worth of the property. It is just to both sides, provided the valuation is carefully and honestly made.

A second important provision is that all franchises hereafter granted shall be in effect "an indeterminate permit," under which a municipality may purchase the utility at any time, for a just compensation to be fixed by the Commission, and according to the terms and conditions fixed by the Commission (Sec. 1797 m-76). At the same time any corporation operating under an "indeterminate permit" is protected against competition by another company, no second franchise being permitted to be granted without the decision of the Commission that public necessity requires a second public utility. It is protected in similar manner against municipal competition; the city may not construct a new plant, but must purchase one already existing, unless the Commission decides to the contrary. At the same time, it is specifically provided that where a plant is not operated under an indeterminate permit, the city may build its own plant. The effect of this is to cause all public service corporations operating now, under an ordinary franchise, to surrender such franchise and receive instead the indeterminate permit, subject to the terms of this law.

Any municipality is empowered to construct and operate a plant for the "production, transmission, delivery or furnishing of heat, light, water or power," except as noted heretofore.

This "indeterminate permit" tends to prevent any company from letting its property run down, just before the expiration of its (usual) franchise, and is a most important invention. If it works out, as may be reasonably expected, it should prove to be the solution of this problem. At the same time that municipal ownership and operation is made comparatively easy, it is less likely to be resorted to, since the power in the hands of the municipality will tend to secure good service on the part of companies, and prevent the abuses which lead to the demand for municipal ownership. The eleven hundred municipal electric light plants now in operation in the United States will doubtless grow more numerous, but if this law were in force in each State it would be a slow and steady movement, coming gradually as cities are prepared to conduct business matters successfully, and under conditions fair both to the companies and to the consumers.

That the indeterminate permit reduces the value of the franchise, considered as a separate asset, has been pointed out by Prof. John R. Commons in a recent article in the *Review of Reviews*. While mere permission to operate has an undoubted value, it is exceedingly small when accompanied by the power to take over at any time on payment of the value of the property. The two principles, *valuation* and the *indeterminate* grant, go together.

The further powers of the Commission to employ experts, engineers and agents as it may see fit, to inspect the books of all public utilities and to classify the service for each public utility, will undoubtedly prove exceedingly valuable, though no one can predict just how they will turn out. Refusal to comply with the orders of the Commission, to produce books and papers, and to obey subpœnas, is punished like contempt of court. The methods of procedure against the Commission, where either the company or the municipality is dissatisfied with its decision or orders, is provided in Secs. 64-72 and 83-86.

The law gives much power to the Commission. It further places municipal utilities under a board primarily intended to regulate railroads and busy already with that work. It may be that the labor of covering both fields will be too great for one Commission, but the experiment was entered upon without misgiving on account of the general confidence in the Railroad Commission. It will soon be possible to determine whether such a union of duties is wise and practicable.

An important element in the framing of the Public Utilities Law was the help afforded by the Legislative Reference Library. On the shelves of a large room right in the Capitol, accessible to every State Senator and Assemblyman, were all the laws of other States on public utilities; bills formerly drafted or introduced into the Wisconsin Legislature, speeches, newspaper editorials, magazine articles—an up-to-date collection of all the varied material on the subject, in charge of a competent librarian and instantly available. Knowledge of all the methods of control and supervision of public service concerns ever advocated or tried made possible the drafting and passage of what Allen R. Foote calls the best measure of its kind. That it must be fairly acceptable to both companies and the public may be inferred from the fact that both Mr. Foote, who is opposed, on the whole, to municipal ownership, and Prof. John R. Commons, who, in the main, favors it, have said good words for it.

References: (1) The law itself may be had in pamphlet form from J. A. Frear, Secretary of State, Madison, Wis., or from Chas. McCarthy, Legislative Reference Library, Madison, Wis.

(2) A speech by Allen Ripley Foote, of Columbus, O., comparing the Wisconsin and the New York Public Utility Laws, delivered before the Wisconsin Legislature—60 pages—may be obtained at same place.

(3) The *Review of Reviews*, August, 1907 (p. 221), contains an excellent discussion of the law by Prof. John R. Commons, of the University of Wisconsin.

(4) The supplementary laws, relating to the contract of street railways and the stock and bonds of corporations, may be obtained from the Legislative Reference Library, as above.

THE DISPOSAL OF MUNICIPAL WASTE

Systems and Methods with Special Reference to American Conditions—The Calorific Values of American Waste—Tables of Composition and Coal Equivalents—Heat Values of Waste Materials

By W. F. MORSE, Sanitary Engineer

This Series of articles, begun in February, 1906, and continued in the first number each month, will be concluded in the issue of December 4.

The Subjects Already Treated by the Author Are:—

1. The Waste Collection Service in American Towns; Methods and Results.
2. Definition of Terms; Quantities; Proportions; Character of Waste in General.
3. Garbage; Analysis; Proportions; Values.
4. Dry Refuse and Rubbish; Quantities and Treatment.
5. Classification:—Commercial Values and After Recovery.
6. The Refuse Utilization Stations in New York, Boston, Buffalo, and Brooklyn (illustrated).
7. Municipal Ashes; Analysis; Proportions; Values when Separated.
8. Ashes from Cremation of Garbage; Analysis and Values; Comparative Table.
9. Comparison of Ashes from English and American Cities; Cremation Means.
10. The Utilization of Municipal Waste in General; English and American Methods.
11. Commercial Values of Refuse and Ashes when Marketed and Manufactured.
12. The Analysis of Garbage; Tankage; Its Value (Special Tables).
13. The Garbage Disposal Plant, Cleveland, Ohio.
14. Street Sweepings; Fertilizing Value and Treatment.
15. Comparative Commercial Values of Waste.
16. Foreign Destructors; Special Chapter by an Eminent Authority.
17. The First Garbage Cremators.
18. Official Reports on Cremators.
19. Chronological List of American Crematories from 1885.
20. List of Government and Institutional Installations.
21. Consolidated Tables of Installations; Hygiene and Sanitation.
22. Types of Furnace; the Operating American Furnaces (fully illustrated).
23. Portable Crematories (illustrated).
24. Summary of American Furnaces.
25. The Destructor System Using High Temperature (illustrated).
26. Calorific Value of Waste as Fuel (Comparative Tables).

The Following Are to Appear:—

27. Present Attitude of Municipalities Toward Disposal Work; Résumé.
28. What May Be Expected of the Future.

Calorific Values of Municipal Waste

TAKEN in conjunction with the reports of quantities and composition of household waste contained in the tables previously given, and following out the analysis of one full year's waste collection of an average American community where the conditions and circumstances are normal, the table following deals with the several divisions of the waste, and their relative calorific values as fuel.

This is condensed from the report of the Department of Street Cleaning, New Brighton, for 1906, as compiled and reported by Mr. J. T. Fetherston, Superintendent of Streets, Borough of Richmond, New York City.

These results, obtained from laboratory tests and practical trials of larger quantities from the town's collections, may be taken as the best determinations yet made in this country. From these may be calculated the calorific values of the average American municipal waste throughout all the northern American towns, where similar conditions prevail, making due allowance for exceptional proportions of either waste constituent when necessary.

Assuming these figures as correctly representing the accurate and theoretical values, in the tables following they are extended to cover the various collections of mixed waste, and expressed in equivalent coal values.

In all these tables the writer has used the word "refuse" to mean the dry combustible light waste, and employed the word "rubbish" to mean the residuum left of incombustibles, after sorting out the marketable and combustible portions. Rubbish properly includes the glass, metals, tins, crockery, and generally all unburnable matter. (See MUNICIPAL JOURNAL, April 4, 1906.)

TABLE XXXVIII.—CALORIFIC AND EQUIVALENT COAL VALUES

MATERIALS	COMPOSITION, CALORIC VALUE AND EQUIVALENT COAL IN ONE TON OF MUNICIPAL MIXED WASTE				Equivalent Coal in One Ton Each, Ashes Garbage, and Rubbish
	Composition	Calorific Value Per Lb.	Calorific Value Per Ton in	Equivalent Value	
	Per Cent.	B.T.U.	B.T.U.	Coal, Lbs	Coal, Lbs.
Coal and Cinders. ..	26.7	4,901	2,617,134	201	754
Garbage, wet*.....	23.8	2,358	1,122,696	86	363
Rubbish.....	7.1	8,437	1,198.054	92	1,298
Fine Ash.....	34.7	1,937	1,344,278	103	298
Clinker.....	1.8	1,120	40,320	3	172
Glass and metals. ..	4.8	.....	.....	.....	.....
Free water.....	1.1	.....	.....	.....	.....
Totals.....	100%	18,753	6,322,482	485	2,885
Garbage, dry.....	6.81	8,243	5,613,483	431	1,268

* Moisture, contained water, 71.4%

TABLE XXXVII.—CONDENSED TABLES ONE YEAR'S COLLECTIONS, NEW BRIGHTON, N. Y. POPULATION 26,000

MATERIALS	TOTAL COLLECTIONS: QUANTITIES By Vol.	By W'ght		ASHES AND RUBBISH: Fine Ash	Clinker	Glass and Metals	Coal and Cind'r	Rubbish	GARBAGE: Vegetable	Animal	Free Water	AVERAGE OF 30 TESTS OVER 1 YEAR: Moisture	TESTS (LEDERLE LABORATORIES): CALORIMETER TESTS: Calor. Power	Water	Ash	Combustible	Calorific Power in Combustible Computed
	Cu.Yds.	*Tons*	%	%	%	%	%	%	%	%	%	%	*B.T.U.*	%	%	%	*B.T.U.*
Ashes and Rubbish..	21,612	9,070	73.3	34.7	1.8	4.8	26.7	.....	.....	.....	.....	.....	4,901	1.64	54.06	44.29	11,066
Garbage.....	7,107	3,311	26.7	.....	.....	.....	.....	.....	22.6	1.2	1.1	71.4	8,243	1.52	17.93	80.55	10,233
Refuse.....	.....	.....	.....	.....	.....	.....	.....	7.1	.....	.....	.....	.....	8,437	1.83	12.85	85.32	9,899
Fine Ash.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.79	82.06	16.14	1,937*
Clinker.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.87	89.80	9.33	1,120*
Totals.....	28,719	12,391	100.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
NOTES—	Daily collections except Sunday. Wgt., 1 cu. yd. ash and rubbish, 0.424 tons = 848 lbs.; Garbage, 0.466 tons = 932 lbs.			Fine ash-passed ½-in. screen. Coal and cinder rejected by screen. Free water—that lost in handling material.								The average water held in suspension, excluding "Free Water."	Values computed on dry material, exclusive of free water. Garbage is computed at 6.81% dry material. Laboratory tests on coal and cinder.				*Assumed at 12,000 B. T.U. per lb. combustible. Coal ass'm'd at 13,000 B T U. lb.

TABLE XXXIX.—FUEL VALUES ONE TON MIXED RUBBISH, GARBAGE AND REFUSE

Components	%	Lbs.	Garbage	Lbs.	Equivalent in Coal, Lbs
Rubbish, Incombustibles	4.8	96	.....	96	.....
Garbage	88.1	1,762	{ Water 71.4% / Solids 28.6% }	1,258 / 504	319
Refuse	7.1	142	.....	142	92
Totals	100.%	2,000	100.%	2,000	411
Deduct for evaporation of water at 9 lbs. water per lb. coal					139.5
Net theoretical coal equivalent					271.5

TABLE XL.—CONSOLIDATED TABLE OF COAL VALUES OF MIXED MUNICIPAL WASTE

One Ton Each	Mixed Ashes, Garbage, and Refuse		Mixed Garbage and Refuse		Mixed Ashes and Refuse	
Value in lbs. Coal	%	Coal	%	Coal	%	Coal
Ashes, = 1,224	63.2	= 307	.....		87.	= 1,078
Garbage, wet, = 363	23.8	= 86	88.1	= 319	.....	
Refuse, = 1,298	7.1	= 92	7.1	= 92	7.1	= 142
Glass, etc., ...	4.8	= —	4.8	= —	4.8	= —
Water, ...	1.1	= —	—	= —	1.1	= —
Totals = 2,885	100	= 485	100	= 411	100	= 1,220

The Calorific Value of Ashes

In examining these calculations there are some unexpected and surprising results. For instance, the fuel value contained in fine ashes seems to be far greater than has been supposed. Household ashes are known to have from 25 to 35 per cent. of unburned coal mixed with cinder and slate, and also contains nearly 40 per cent. of finely burned ash. This fine ash has not been held to possess any heat value, and under the usual furnace conditions with natural draft does not develop power. But when treated by itself it contains a considerable proportion of combustibles. This is illustrated by laboratory tests made in July last, with samples of steam-boiler ashes from the plant of one of the largest manufacturing works in this country, where the daily output of ash is from twenty-five to thirty tons. All of the boilers, with two exceptions, are fired by mechanical stokers of various patterns. All use the same semi-bituminous coal.

Laboratory Analysis of Steam Ashes

Moisture	0.54 per cent.
Ash	51.42 per cent.
Total combustible	48.04 per cent.
Calorific power	7737 B. T. U.

Following the same line of calculations as in previous tables, it would appear that one ton of these ashes has a theoretical equivalent coal value of 1,190 pounds. Assuming the combustibles according to another determination at 5,000 B. T. U., the coal equivalent would be 768 pounds. These results seem to be unexplainable except upon the supposition that a large proportion of the fine coaldust falls through the grates and is removed with the ash, clinker, and cinders.

The Calorific Values of Other Waste

The subject of the disposal of many forms of waste matter other than municipal refuse is attracting attention all over the world. Abroad, the large industrial corporations which have trade waste or a large output of steam-boiler ashes are taking up the question of their economical disposal. At several places in England, where the colliery waste will frequently spontaneously ignite, causing much trouble and nuisance, it has been demonstrated that these fuels of low calorific value and high percentage of incombustibles can be profitably consumed. Similarly, in shipyards, railway shops, and large manufacturing concerns where there are large quantities of wood chips, shavings, sawdust, paper, cinders, and ordinary works refuse, the saving in fuel when burned in a specially designed plant has warranted the outlay for equipment and overcome the difficulty of disposing of these waste materials. The following table gives the approximate calometric values of some waste matters that can be advantageously consumed.

TABLE XLI.—COMPOSITION, CALORIFIC VALUE AND HEAT BALANCE, NEW YORK CITY WASTE

*(Condensed from Parsons)**

City Collections			Heat Balance		
Composition		Used as Fuel		Total Heat of Combustion	Dissipation of Heat
		%		B.T.U.	B.T.U.
Garbage,	15%, 70% moisture	22.9	Dried portion	515	.....
Ashes,	64%, 25% combustible	48.7	Moisture	.....	317
Rubbish,	7%, 33% sorted out	7.1	On basis ⅔ of combustible burned	1,095	.....
St. sweepings,	14%	21.3	On basis ⅓ sorted out	355	.....
			On basis 35% incombustible	426	.....
			Heating fuel-mass	.....	129
			Heating air-supply,† about 14.3 lbs. air per lb. of combustibles	.....	1,945
Totals	100%	100%	Estimated B.T.U. per pound	2,391	2,391

Mr. Parsons says: "If the heat be passed through a boiler and losses assumed at 40 per cent., then the available useful heat would be 2,391 × 0.60 = 1,434 B.T.U., or sufficient to evaporate 1.48 pounds of water from and at 212° F."

* "Disposal of Municipal Refuse," H. de B Parsons. Jno. Wiley Sons, N. Y.

† The pounds of air per pound of fuel are figured by difference.

TABLE XLII.—CALORIFIC VALUES OF WASTE MATERIALS

Class of Material	Lbs. Water per Lb. Fuel from and at 212° Fahr.	Colliery Refuse	Lbs. Water per Lb. Fuel from and at 212° Fahr.
Cotton waste	4.1	Fine washings	10.20 to 5.01
Sugar refuse	2.35	Pond settlings	10.3 to 12.04
Newspaper	6.85	Shale pickings	4.45 to 9.62
Tissue paper	6.2	Fine coke dust	9.4
Brown paper	5.6	Screen pickings	8.05 to 13.
Wood chips, wet	3.5	Tank settlings	5.75
" " dry	8.2	Coke and coal dust	10.2
Brick kiln cinders	4.8		
Shoddy refuse	5.2	Peat, dry	10.62
Cider refuse, wet	1.9	" wet	7.65
" " dry	8.4	Straw, dry	6.5
Spent tan bark, dry	5.46	" wet	5.6
" " " wet	3.84	Sawdust	5.1

As illustrating the power to be had from refuse coal waste, there is appended the details of a trial made at the North Navigation Collieries, South Wales, on two Meldrum Simplex Colliery Destructor Furnaces, coupled to two Lancashire boilers, 30 feet long by 8 feet 6 inches diameter, consuming coke oven breeze and pond settlings, with evaporation from cold feed water.

	Duration of Test	
	8 A.M. to 9 A.M.	12 noon to 4:30 P.M.
Fuel used	C. breeze and P settlings.	C. breeze and P. settlings.
Water evaporated per hour	1,872 gals.	1,620 gals.
Total water evaporated	1,872 gals.	7,400 gals.
Temperature feed water	40° Fahr.	40° Fahr.
" atmosphere	45° Fahr.	45° Fahr.
Steam pressure	125 lbs.	125 lbs.
Fire	Clean at start	Two furnaces cleaned during test.

Furnace Efficiency

Returning again to the tables of calorific values, it must be noted that these equivalent coal values are theoretical results only—since the determinations are based upon laboratory tests, and the ratios calculated from these.

These theoretical results are to be considered as indicating the amount of heat units, but do not show the actual product of power developed by the burning waste.

The efficiency of a steam boiler is placed at 65 to 75 per cent. of the total possible power, and it is certain that the service of the best type of destructors will equal the same efficiency. Assuming the loss of efficiency to be 30 per cent., leaving 70 per cent. as the available power of the destructor and boiler taken together, we may then get a fairly accurate estimate of the real efficiency of the service. This estimate is fully warranted by the numerous reports of destructor work abroad and from the one operating plant in this country.

To put this question of efficiency in a practical way, the following tables of compositions of waste and heat balance will indicate a basis for comparative efficiency based upon the composition and quantities included in the previous tables:

TABLE XLIII. — COMPOSITION OF WASTE AND HEAT BALANCE

Composition of Waste	%	H. U.
Coal and cinders	26.7	4,901
Garbage	23.8	2,358
Rubbish	7.1	8,437
Fine Ash	34.7	1,937
Clinkers	1.8	1,120
Glass and Metals	4.8	.....
Free water	1.1	.....
Total	100.0	.....

Charge, one pound of mixed waste. Temperature of furnace, 2,000 degrees F.

Heat Balance	B. T. U. Generated	B. T. U. Lost
Coal and cinders	1,308	.....
Garbage	561	.....
Water in garbage, 71.4%	.....	336
Rubbish	600	.....
Fine ash	672	.....
Clinkers	10	.....
Heating fuel mass, assuming ½ lost	.....	121
Heating air supply	.....	2,694
Estimated B. T. U. per pound	3,151	3,151

If the waste heat of the furnace is used to raise the temperature of the air supplied for combustion 250 degrees F., this would return to the furnace 234 heat units, and if the air supply were heated 300 degrees the saving would be 280 heat units, thus effecting considerable economy and increasing the temperature and intensity of combustion.

In American practice the actual efficiency of the furnace, considered by itself, without reference to power development, is far less than that obtained by the destructors. The work of the crematories has shown that in some cases, under exceptional conditions, when the proportions of light refuse are large, mixed garbage and refuse can be consumed with a small quantity of additional fuel. But these collections of large quantities of combustibles do not as a rule occur in municipal work.

Thus the government officers, in their specifications for crematories at the army posts usually provide that the garbage shall be destroyed with a minimum of 200 pounds of coal per ton of waste. It is obvious that even under the best conditions, in the charge of Government Engineers, these crematories are not expected to develop heat for the autocombustion of the waste.

The reasons for this have been stated—owing chiefly to the form of the furnaces, and the absence of forced draft, and the great number of doors and openings that admit large volumes of cold air.

The conditions of success attending this work, as stated by Prof. Thurston, are "the surrounding of the mass so completely with heated surfaces and with burning fuel that it may be rapidly dried, and then so arranging the apparatus that the rapidity of combustion be precisely equal to and never exceed the rapidity of dessication." How far these conditions are met in the construction and arrangement of cremators and incinerators can be easily seen by inspection of the previous plans and descriptions.

When garbage and refuse, separately collected, are brought to an incinerator or crematory, and charged separately into the furnace, what then takes place is further described by Prof. Thurston: "When this rapidity of combustion is exceeded, the dry portion is consumed completely, leaving the uncovered mass of wet fuel, which refuses to burn." This is precisely what happens when large volumes of dry rubbish are burned with an excessive amount of cold air, and the heat is carried rapidly to the chimney, leaving the wet mass of garbage on the grates, and then coal or other fuel must be used to continue the combustion.

The Operating Costs

In no one of the points involved in the disposal of waste has there been so wide a difference of opinion, and such deliberate misrepresentation and perversion of the facts, as in this question of how much it costs per ton for fuel and labor to cremate municipal waste. The habit has been to take the lowest figures obtained from the work of the crematory or incinerator under exceptionally good conditions, at a place where the waste has good calorific values and the cost of fuel is low, as the standard for all other places, and to give this as the guaranteed operating cost.

This has sometimes led to trouble for the builders when the town authorities have the courage to insist upon performance of the contract, according to the guarantees of the specifications.

In other cases the influence of pull or politics or graft has been strong enough to get an acceptance despite the obvious fact that the contract has not been fulfilled. In the absence of trials conducted by responsible and competent engineers, acquainted with the construction and methods of operating furnaces, there is often a question as to the results of the trials—and usually the builders get the benefit of the doubt.

All these instances—and they are being constantly repeated—only emphasize the fact that this department of municipal work demands a better system of accounts and

cost keeping of the collection service, a fairly accurate estimate of the quantities, with some knowledge of the composition of the wastes, and when asking for tenders, there should be a clear statement of what the town really wants, with the vital and essential points that will be insisted upon clearly defined and forcibly expressed.

It has been previously stated that the difficulties in obtaining reliable operating costs of American crematories were so great as to prevent any statements being made at the time of the publication of the lists of crematories (MUNICIPAL JOURNAL, January 2, 1907). Since then several reports have been obtained which are believed to be accurate, and are herewith appended. These operating costs include labor and fuel only, no accounts being made of maintenance, repairs, or fixed charges for interest or depreciation, except in one case.

TABLE XLIV—OPERATING COST AMERICAN CREMATORIES

DECARIE COMPANY

	Per Ton
Minneapolis, fuel, wood edgings	38c.
Atlanta, coaland wood	32c. to 34c.
Los Angeles, oil	65c. to 90c.
Muncie, Ind., coal	60c.
Spokane, 6 months—January to July { Wood edgings }	72c.
" 6 " —July to January { and coal }	57c.
Lowell, Mass. (garbage and dry refuse) 3 years average	$1.29

DIXON COMPANY

West Point, N. Y. (Government Plant), coal	.63
New Brighton, coal	1.28
Mansfield, coal	.46½
World's Fair, St. Louis, coal and coke	.41
Meadville, coal	.39
Lafayette, Ind., coal	.44 5/16
Wabash, Ind., coal	.42
Shreveport, La., natural gas	.48
Donora, Pa., coal	.30½

ENGLE COMPANY

Norfolk, average for 10 years, and repairs, coal	.50
Richmond, coal	68c. to 70c.
World's Fair- Chicago-1893 oil { Garbage	.63c.
{ Sewage Sludge	.73c.

THACKERAY COMPANY

Montreal, no extra fuel	39c.
San Francisco, no extra fuel	28c.

DAVIS COMPANY

Trenton, coal	62c

SMITH-SIEMENS COMPANY

Atlantic City, manufactured gas	$1.52

In comparison with these is appended a list of operating cost of many English destructors of different makes, operating for many years.

Average of	85	installations, top feed, six makers	27.
" "	9	" mechanical feed, four makers	30.
" "	17	" hand front feed	21.
" "	12	" six makers	32.
" "	68	" power not utilized	27.

These are the averages of many English destructors, of six different kinds, doing the same work all over Great Britain. In this country the wages of men are higher, hence the cost per ton will be somewhat higher than the figures quoted, which is shown in the reports of operation of the Meldrum destructor at Westmount, Canada.

Report of the Destructor Service, Westmount, Canada, for Eight Months. Jan. to Sept., 1907.

Total quantity waste destroyed	5,058 ton
Gross operating cost per ton, including all fixed charges, interest, sinking fund and depreciation	80c
Net operating cost per ton, including all supplies, wages, and repairs	31c

The report further says:

It must be understood in this connection that the Westmount destructor is one having a capacity of 50 tons per day, and that the average destruction was under 20 tons. In other words, this destructor is operated as a destructor, extravagantly, but in view of the returns in water evaporation it is operated economically.

It will be clear that a destructor plant operated for power, with small amounts of waste, will be more expensive in its work than the same plant operated for disposal only, for then the conditions of labor are changed and a smaller number of men at less wages are employed. The regular supply of the waste in the largest amounts is a most important factor in this calculation. During several months when the quantities approached something near the capacity of the destructor, the cost of operating were 7c., 15c. and 27c. per ton, instead of 31c. When power is not to be utilized a destructor can be operated as cheaply as any crematory or incinerator of the same relative capacity.

CREMATORS AND DESTRUCTORS COMPARED

The differences pointed out between the cremators and destructors, and the comparison of the results of the work of each, are obviously in favor of the destructor system of disposal.

This statement is made, not with the purpose of unfair criticism or harshly condemning the work of the past years of American furnace builders. The writer has been identified with a large number of these crematory installations in many varied firms, and knows at what cost of money, time and earnest effort they have been built and operated. But taking the record of the years past and comparing the results accomplished with the expected and promised returns, it must be admitted that there is a failure to achieve anything more than a partial success. The future of this work as at present carried on does not offer an encouraging outlook, and it seems absolutely necessary that a change be made, and some better form of apparatus be brought into service. The experience of other countries should be brought to our aid, now that we know the conditions of the American communities are almost identical with those existing abroad, where successful methods of destroyal of municipal refuse by fire are in use.

In the past two years there has been one destructor installed that has met the guarantee made for its performance, and proved its ability to deal with the municipal waste of the country precisely as is done by other destructors in more than three hundred installations in other parts of the world.

This has led to the thorough examination of the subject by engineers sent from this side, and in three cases these destructor methods have been adopted by American and Canadian cities. Other cities are engaging competent engineers to examine and report upon their own requirements with the intention of adopting that method which may be most suitable for them.

All this means progress; it means the application of the best engineering talent obtainable and the permanent establishment of durable and successful methods; and let us hope, it also means the end of the crooked and doubtful ways of obtaining concessions and contracts that react alike upon the builders and the towns and are a reproach and a menace to all who are connected with this work.

One or two reports from engineers of standing and reputation who now are considering this question will do much to establish the true value of the disputed and conflicting claims as to what should be the future of this work in American communities.

(To be concluded.)

NEWS OF THE MUNICIPALITIES

Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

Roads and Pavements

INDIANAPOLIS, IND.—Street Commissioner Joseph L. Hogue is experimenting with oil as a layer of dust on macadam streets. Capitol avenue between Fall Creek and Thirty-fourth street has been used for the purpose, as that thoroughfare has been exceedingly dusty since the sprinkling with water ceased the middle of October. The Street Commissioner arranged with the Park Department to put two tanks of Westrumite oil on the street after it had been carefully swept and cleaned. There is marked improvement in the condition of the roadway, and if the cost does not prove too great, Mr. Hogue will recommend to the Board of Public Works that all the macadam streets in the city be oiled.

PENSACOLA, FLA.—The Board of Public Works has requested the Marshal to enforce the old wagon tire ordinance. This compels the owners of all wagons, drays and other vehicles used for the purpose of carrying heavy loads, to have tires on such vehicles measuring not less than two inches in width. It is proposed that by this means streets can be kept in better condition, and not be cut up by wagons with narrow tires.

SAN JOSE, CAL.—An ordinance is being considered by the City Council having for its object the protection of those who have their sidewalks made under private contract. It provides that any contractor undertaking to do such work must first file a bond in the sum of $500 for the faithful and efficient performance of any work done by him, which bond may be recovered upon for either defective workmanship or material at any time within twelve months of the completion of any contract.

WILLIAMSPORT, PA.—An example in economics has been shown City Councils by a report made by Street Commissioner Knerr. Last year Councils paid an Erie firm over $5,000 for making repairs on the asphalt streets. This summer more repairs than last year were necessary, and Councils endeavored to pass legislation for the purchase of a repair plant and road roller, at a total cost of nearly $6,000; but owing to disagreement as to style of road roller the ordinance was killed. Then Street Commissioner Knerr, with four men and an improvised repair kit, went to work on the repairs. They made a fine job, and the whole thing cost less than $1,000.

NEWCHWANG, CHINA.—The Chinese authorities are making good progress in establishing a proper drainage system throughout the city. Some hundreds of feet of drains have already been constructed, and the work is still far from completion. Several of the main roads have been macadamized, and the clean appearance of the streets is evidence of the painstaking work of the Board of Sanitation. No refuse of any nature is allowed to be promiscuously dumped, and all shopkeepers are instructed to keep their premises in a sanitary condition. Owing to the strict sanitary rules which have prevailed during the spring, the port has been so far free from diseases of an epidemic nature. The foreign quarter has not been neglected, and the principal streets are all being macadamized. This is commendable on the part of the Chinese authorities, as very little in the way of taxes is realized from the foreign section. The authorities, in realizing the fact that they must keep up the work so ably conducted by the Japanese, are more than anxious to demonstrate their capabilities in governing and regulating a treaty port which is practically controlled by them. The future upkeep of the foreign quarter will naturally depend on a universal system of local taxation agreed upon by the foreign property owners and the Chinese officials, with the approval, of course, of the local consular body.

Sewerage and Sanitation

HARRISBURG, PA.—The special sub-committee of the Sanitary Committee of Councils, through Chairman Snavely, has reported on conditions along Paxton creek and the river front, and makes a number of recommendations, which will be urged upon Council by Chairman Eberts, of the Sanitary Committee. The construction of a dike across the west end of the ravine at Cameron street and the paving of the creek's bed with blocks taken from the streets from Herr street to the Paxton furnaces is recommended; also the elimination of all sewage. To obliterate the trouble arising from the dumping of the city's sewage into the river, the report recommended that a ten-foot concrete wall be built at low water mark from Maclay street to the intercepting sewer in South Harrisburg, and that an intercepting sewer be laid within this wall to catch the sewage. The riverside parks could then be extended out from 60 to 100 feet.

LOS ANGELES, CAL.—Council recently passed an emergency measure, designed to provide for the scientific cleaning up of the city, and put it on a sanitary basis which the organized medical profession of Los Angeles city and county would pronounce perfect. According to the plans outlined, nine physicians will serve as Medical Inspectors, each in charge of a ward; eighteen men will serve as Sanitary Inspectors under these physicians; eighty-one assistant inspectors, nine for each ward, will catch rats and mice; one hundred and forty laborers will gather up rubbish and waste, and forty drivers with teams will haul the stuff away. It is proposed to consign everything burnable to the flames, the rats to the crematory and the remainder to bonfires. The new law provides that the inspectors shall be authorized to inspect any premises for the purpose of determining whether any violation of the law regulating sanitary conditions is caused or permitted, and notify the owner or occupant to burn, destroy or remove such substance or matter. Upon failure of owner to comply with the notice, the inspectors may take whatever action toward carrying out the law they may deem necessary.

PORTLAND, ORE.—A bacteriological laboratory is to be established in the City Hall, and a competent bacteriologist is to be employed to take charge of the work and trace disease germs and analyze the milk and other food supplies in the city. The city health authorities believe it will be the means of obtaining a better supply of milk to the city and will reduce the amount of contagious diseases which are brought about through impure dairy products.

WASHINGTON, D. C.—Judge Mullowny, of the Police Court, has decided that the retail milk or cream dealer who is found by the District Inspectors to have sold milk or cream which is below the standard cannot be prosecuted under the law governing the sale of such products, when the retail dealer has a guarantee from the dairyman or wholesale dealer that the milk or cream is up to the

standard, and giving the name and address of the dairyman. The Judge says he finds the retail dealers swear they sell the milk as they obtained it from the dairyman or wholesale dealer, and in the same packages as supplied by them, and while he regards that as a mitigation of the offense, it does not justify a verdict of not guilty except where the retail dealer has a guarantee with the milk found to be below the standard that it is up to the standard. In compliance with Judge Mullowny's suggestion made from the bench that some wholesale dealer or dairyman should be brought before him when discovered violating the law, be imposed a fine of $25 on one dealer, the heaviest penalty imposed in a milk case in the district in many years.

Water Works

ALBANY, N. Y.—The growth of cities and villages and the enlarging of supplies of drinking water have necessitated stricter supervision by the State Department of Health to prevent outbreaks of typhoid fever communicated through the water. A map showing the watersheds of the State has been completed by the Department, and one of the most serious problems now before the Health Department is how far communities may be allowed to go in draining into the rivers. No plans for new sewers may be adopted unless they are first approved by the State Commissioner of Health. In this manner the State has a check on the municipalities. Some cities and villages are so situated that sewage disposal plants are necessary, and as the present sewer systems become inadequate to meet the needs of the localities they must be replaced with systems which do not endanger the water supply. Deputy Commissioner Seymour, of the Health Department, has been conducting an investigation of the water supply on the passenger trains of the State. It is shown that persons are more liable to fall victims of typhoid fever in traveling long distances than while engaged in ordinary occupations. Mr. Seymour has collected data to show the sources from which the drinking water on trains is taken, and an inspector is collecting other information.

FARGO, N. D.—Mayor Elliott, pursuant to resolution of Council, has named the members of the new Water Commission, as follows: Mayor Elliott, City Attorney W. C. Resser, City Engineer S. F. Crabb, and Aldermen A. G. Lewis, Amerland, Stern and Cummings. The committee, under the provisions of the resolution, is to act in conjunction with Moorhead and the Northern Pacific Railroad, and is to make a complete and detailed report of its investigations to the City Council at the regular December meeting.

MOORHEAD, MINN.—Moorhead is troubled in securing good drinking water, and Julius E. Johnson, of the Wheeler Land Company, in this city, declares that there is every evidence of an inexhaustible supply of the best artesian water beneath the farm of James Saner, in Spring Prairie Township, Clay County, sixteen miles from the river, and that it is well worthy the investigation of the Water Commissioners of both Moorhead and Fargo. It is believed that there is an underground lake beneath the Saner farm. Mr. Saner had an artesian well sunk a few years ago, and since then has all the water needed; in fact, so much that he has been obliged to drain it off his place. It is presumed that the basin is fed from the lakes east of Clay County, which are considerably higher, and the Saner farm is thirty-four feet above Moorhead, so that there would be a natural pressure. Mr. Saner has a water analysis by the authorities of the State University, and it shows the water fit for all purposes and very excellent for domestic uses.

IRONTON, O.—The State Board of Health has ordered the Board of Public Service to take no further action looking to the construction of a new water supply system until it shall have approved the plans therefor. About a year ago plans prepared by Alexander Potter were approved by the State Board, but the Board of Public Service later decided to change these. Mr. Potter protested against this change, and the differences arising from this caused his withdrawal from the position of engineer of the project and another was engaged. This engineer also resigned at a recent meeting of the Board, it being stated that this resignation was due to the avowed intention of the Board of Public Service to disregard the State Board of Health, as was Mr. Potter's.

JOHNSTOWN, PA.—Sanitary Inspector E. T. Edwards has received from Dr. Herbert Fox, of Philadelphia, head of the State chemical laboratory at the University of Pennsylvania, reports which indicate that the water used throughout the city, regardless of its source, is free from injurious bacteria of any kind. It is thought that the recent cleaning of the watersheds and the close guard since maintained is responsible for such a gratifying condition. Despite these favorable reports, however, and the fact that only a small and widely scattered number of typhoid cases exist in the city, Inspector Edwards says the boiling of drinking water should be by no means discontinued. The reservoirs are everywhere lower than at any previous time this season, he states, and reasonable precaution should be maintained.

LAMBERTVILLE, N. J.—The women have declared that the old town pump must not be removed unless the water procured from it is absolutely proved to be harmful. The pump has been in use forty years, but recently several cases of typhoid fever developed and the Board of Health ordered the removal of the pump and the filling of the well. When the women of the neighborhood heard of the decision they procured a large American flag, wound it round the trunk, and placed two smaller flags upon the top. When the inspector of the Board of Health went to remove the pump he saw the flag and retreated, and all efforts to get anyone to touch the revered pump have been futile. The women say that if the water is really proved to be unhealthful they will remove the flags and their objections, but they want a complete test made to demonstrate that fact.

Street Lighting and Electric Power

CLEVELAND, O.—W. J. Springborn, President of the Board of Public Service, has advised Council that in making tests to determine the candle-light power of the gas furnished by the People's Gas Light Company, it was found that the gas did not consist of a quality provided for in the ordinance under which the company is operating, which calls for a 17-candle-light power. The tests made show:

September 28 at 10:45 A. M. 13.84 candle light power.
September 30 at 4:00 P. M. 14.45 candle light power.
October 1 at 11:00 A. M. 16.73 candle light power.
October 5 at 11:00 A. M. 15.80 candle light power.
October 7 at 10:30 A. M. 13.84 candle light power.
October 8 at 2:30 P. M. 16.00 candle light power.
October 12 at 10:30 A. M. 13.31 candle light power.

The recommendation was made that the Solicitor see what action is necessary to force the company to furnish better gas, or advise whether a reduction in price can be secured in proportion to the lower candle-power furnished

SYRACUSE, N. Y.—In accordance with suggestions of the Public Service Commission for the upstate district, the Bureau of Gas and Electricity of Syracuse is to undertake the regular inspection of gas and electricity meters as provided by the public utilities law, which requires

regular and thorough inspection under direction of the State Commission. To aid in the electricity tests there has just been received by the Bureau of Lighting a set of instruments, consisting of a watt meter, an ammeter, a volt meter, a lamp testing meter, two portable transformers and a large quantity of laboratory apparatus. The electric meter testing devices have to be adjusted in the cities where they are located, their delicacy not admitting of their being shipped without damage to their accuracy, and those in Syracuse will not be officially inspected by the State until the Commission adopts a standard, which is expected to be the international standard adopted by the United States government. The gas meter testing devices already owned by the city will be inspected at Albany, where they will be reset to the standard established by the State. The gas testers were sent in response to a general order sent out by the Public Service Commission throughout the State to all gas companies and municipalities.

Wallington, N. J.—The borough has been in darkness for some days, owing to the fact that the lighting company has taken up its poles and deserted the town. At a recent meeting the Council turned down a contract presented for renewal by the New York and New Jersey Globe Gas Lighting Company, but a new contract has since been entered into for fifty 60-c.p. Welsbach lights at $30 per annum each. This will not go into effect until November 14, but in the meantime the company will use the old lights.

Washington, D. C.—Commissioner H. B. F. Macfarland has approved the recommendation of W. C. Allen, Electrical Engineer of the District, that photometric tests be made of the electric, gas and naphtha street lighting systems in the District, to ascertain whether candlepower, gas consumption and the like are in accordance with the requirements of the act of Congress and the terms of the contract. The Electrical Testing Laboratories of New York will make the tests, which will require seven or eight days.

Montreal, Can.—Though no tenders for the supply of electricity have yet been advertised for, a preliminary proposal has been received from the Colonial Engineering Company, of Montreal, in which they state they are in a position to install a complete generating station with a capacity of 2,000 lights, the cost of which will not exceed $400,000, and yearly maintenance $60,000. The total cost per annum per arc light, including maintenance, together with interest and depreciation on a pole line constructed and owned by the city, should not exceed $40, a saving of $20 per arc lamp over the price of $60 now being paid by city, or a saving of $40,000 on 2,000 lights. It would require about a year to construct and install such an equipment.

Fire and Police

Glassport, Pa.—Judge R. S. Frazer has sustained Glassport Council in its fight with former Chief of Police William J. Riffner and his force, by granting an injunction restraining Riffner's officers from acting as members of the Police Department. Riffner was elected Chief March 4, but several months later was suspended by the Borough Council, charges of neglect of duty being made against him. I. N. Blosser was appointed temporary Chief, but Riffner refused to surrender his badge. Trouble arose, which resulted in Blosser being arrested by Riffner, and the Borough asked the Court to enjoin the old force from acting. Riffner alleged no quorum was present when he was suspended, and that Council had no right to take such action. Judge Frazer held Riffner had an adequate remedy at law, and was not justified in resorting to force to keep his place.

Hoboken, N. J.—Fire Chief Dunn intends to have the men in his department attain a high degree of proficiency, and, in order that they may have opportunity to observe the methods practiced in New York, arrangements for such a plan have been made with Deputy Chief Farrell, through Deputy Commissioner Bonner. Two members of Hoboken Truck No. 2 will attend the drills of the New York Fire Department on the grounds on East Sixty-seventh street, and watch engine companies attend imaginary fires, build and haul ladders, hoist trucks and manipulate the aerial ladder. The Hoboken representatives will in their turn instruct the members of their home departments on the new exercise grounds recently secured by Council.

Knoxville, Tenn.—The Bertillon system of measurements and identification of criminals is to be installed in the Police Department, and not only those who are arrested in the city will be measured, but the police will exchange data for the identification of persons with officers of this and adjoining counties. After the Bertillon system is established, when an arrest is made and the measurement instruments are put to a suspect, his name, town, and criminal record can be immediately ascertained. One or two of the officers will learn to do the work by visiting some city already equipped, and witnessing the measuring. When the equipment arrives and is put in working order, all the city and county officers will be invited to witness a measuring on some day when all can attend, and it is the intention of the police to measure not only their own arrests and suspects, but also those for the Sheriff and constables of this or other counties of East Tennessee.

Portland, Ore.—An ordinance is under consideration which provides for the extension of the fire limits to the harbor line in the business portions of the city. At present the fire limits extend along Front Street, with the result that any sort of a frame structure may be erected on the water front and used as a dock. Under the proposed measure, not another wooden dock can be built, and all new structures must be of steel, concrete, or brick. This ordinance will be of great benefit to the water front, as it will give the city officials an opportunity to condemn all docks which are thought to be a menace to surrounding structures or which are unsafe for use by the public. It will also lessen the conflagration hazards along the water front, which are exceedingly heavy on account of the inflammable material of which the docks are constructed, and the cheap manner in which they are built.

Government and Finance

Birmingham, Ala.—For the first time since the adoption of its charter, the city has been able to take advantage of the most important provision, enabling it to create a sinking fund. The city charter adopted in 1899 provided that 50 per cent. of all taxes must be used to pay interest on the city bonded debt. There is another provision that if this 50 per cent. ever exceeds the amount due for interest the excess must be set aside in a sinking fund to be used only for the purpose of retiring city bonds at maturity. Any other use or diversion of this money is a felony under the law. Auditor Howard A. Beck's report develops the fact that the sinking fund of the city of Birmingham is entitled to $18,662.02. It will probably not be kept as a cash deposit, as the law permits it to be invested in bonds issued by the United States, the State of Alabama, the county of Jefferson, or the city of Birmingham.

New York, N. Y.—The total amount of budget decided upon by the Board of Estimate and Apportionment is $143,572,266, an increase of $13,150,760 over last year, divided among the boroughs as follows:

	1908.	Net Increase.
City of New York	$135,474,403	$12,717,737
County of New York	3,146,970	274,303
County of Kings	1,550,956	51,289
County of Queens	302,088	87,158
County of Richmond	97,847	20,272
Totals	$140,572,266	$13,150,760
Deficiencies in taxes	3,000,000	.....
Totals	$143,572,266	$13,150,760

The budget this year has been presented in a self-explanatory form, owing to the segregation of appropriation accounts. Mayor McClellan has stated that care has been taken to make appropriations so that it will be unnecessary to issue special revenue bonds during the year except for emergencies which cannot be foreseen. Increases in the Departments of Finance, Law, and Commissioners of Accounts have been made necessary by the increased volume of business, those allowed the Borough Presidents are made necessary by the expiration of maintenance contracts and those for the Department of Parks are to take the place of revenue bonds, which it otherwise would be necessary to issue during the year.

Mayor George B. McClellan has declared that, pending a better adjustment of the city's finances, no contracts will be entered into for new work, although the sewer and paving contracts already let, and which are now in operation, will not be affected. Pursuant to this policy the Mayor has issued the following order:

To the Heads of Departments, City of New York:

Until such time as, in my judgment, the finances of the city warrant it, you are herewith instructed not to advertise any new contracts for work in your department. Respectfully,

GEORGE B. M'CLELLAN, Mayor.

Refuse Collection and Disposal

INDIANAPOLIS, IND.—Preston C. Trusler, of the Board of Public Works, who has had practically absolute direction of the street-cleaning work since the beginning of the present administration, has made a statement reviewing the work of that department. He gives a brief description of the street-cleaning plant acquired from the company that had been doing the work under contract, and says the streets were in a deplorable condition, no amount of work having been done since the preceding autumn, and the plant was generally out of repair. After enumerating the number of wagons, sweepers, mules, etc., purchased by the city since January 1, 1906, Mr. Trusler says that during the two years now drawing to a close no effort has been spared to keep the streets clean, but calls attention to difficulties the Board has because wages are arbitrarily fixed, it being necessary to pay men the same money, though not all equally worthy, and a minimum and maximum rate, enabling the Superintendent to grade and promote men as they deserve, would be a great help. He also says the city authorities have not had that help from the people that they should have and without which it is impossible to get the best results. The householder who sweeps into the street leaves and trash which might be burned in the yard, the merchant who deposits the sweepings of his store in the gutter, add to the cost and keep the streets looking bad. Assistance from taxpayers in these matters will result in a saving of their own money.

YOUNGSTOWN, O.—It has been practically decided by those having the matter in hand to have the city make the collections of garbage, paying for the work out of a general tax levy. The refuse will be disposed of at the cremator, which will have to be greatly improved for the purpose. It is estimated that the collections will amount of 30 tons per day, and the cremator, after improvements are made, will be fully capable of taking care of the garbage for some years to come. A large force of employes will be required to take care of the work, and it is believed that people who think that they cannot now afford to pay garbage collectors for removing refuse from their property will stop burying it and throwing it into dark corners and basements when they discover that it can be carted away for nothing. This will result in a great improvement in sanitary conditions about the city.

Parks and City Beauty

FORT SMITH, ARK.—At a mass-meeting recently held, an organization was formed under the name of the Fort Smith Park and Boulevard Association. The purposes of the Association are: To plan a system of parks and boulevards in and near Fort Smith for the public; to secure right of way where needed; to get options on such tracts of land as may be desired for parks and purchase the same; to have topographical maps made, and to organize an improvement district of Fort Smith. The proposed Cliff Drive was also outlined, with the advantages to be obtained by its completion; the convenience to Electric Park, Country Club, the new county grounds, where twenty or more acres may be parked, and the possibilities for a speedway.

FORT WORTH, TEX.—City Engineer Woodward has practically completed the work of designing the esplanade scheme to be carried out in the vicinity of Broadway. The plans propose that seven parks be set off along this street. They will mark every block and will be from 20 to 192 feet in length and from 19 to 21 feet in width. The shape will be that of an elongated oval. It is the plan of the Commission to cover the esplanades with heavy growths of verdure and flowers, and to make of them, in fact, veritable flower beds. They will mark the first attempt at the construction of street esplanades in Fort Worth.

PORTLAND, ORE.—President E. B. McFarland, of the Rose Society, has urged the City Park Board to take immediate steps for the permanent beautification of the entrance to the Lewis and Clark Exposition grounds, particularly the approach leading to and the grounds surrounding the Forestry building. He has also suggested that the Park Board's landscape gardener and the custodian of the Forestry building be instructed to prepare landscaping plans for the grounds, and to have hundreds of rose bushes planted there this fall, not merely as any part of the plans for the rose exposition next summer, but as adding intrinsic beauty and picturesqueness to the Forestry building and grounds, although Mr. McFarland hopes the Board will arrange to have this improvement made so that the grounds may look as beautiful as possible when the rose festival is held.

SPOKANE, WASH.—A. L. White, of the City Park Commission, is advocating provision for streets and avenues of a uniform width, to be parked according to some definite plan, and the creation of a Forestry Department, which shall have charge of the parkings of the streets and avenues. Mr. White says he believes that the growth and prosperity of a city depends almost entirely upon the actions and attitude of its citizens, and that narrow, dirty, unsanitary streets and slovenly, ill-kept back yards are the results of negligence and not poverty, and that a community's civilization and culture may be fairly gauged by the extent and character of its service for the public good, such as the public schools, parks, playgrounds, and more particularly streets.

WASHINGTON, D. C.—In the annual report of the District Parking Superintendent, Mr. Truman Lanham, just made to the Commissioners, it was shown that during the

past fiscal year 2,574 new trees were planted in Washington and 1,111 trees removed, and at the present time there are 92,706 trees of all descriptions on the streets of the city. These trees are spaced at an average of thirty feet apart, making a total of 518 miles of trees. The sum collected in the form of fines during the year, paid by persons damaging trees, amounted to $438, and the Superintendent figures that the amount of fines for the present year will amount to at least $1,000, and recommended that the Commissioners arrange it so that these fines can be placed to the credit of the Parking Commission appropriation.

Miscellaneous

Fort Worth, Tex.—Mayor Harris has addressed a letter to County Judge Terrell, outlining exactly what the city will do toward the joint maintenance of the pest-house. His proposition follows:

The city is to furnish all inspectors to work within the city limits, and to furnish guards for infected premises that have been quarantined; have all persons suffering from smallpox within the city limits, removed to the pest house; pay for the vaccination of persons within the city limits and the county is to meet the cost of all vaccinations outside the city limits; purchase all fumigating material to be used within the city limits; pay the burial expenses where relatives of the deceased are unable to meet the cost; accept all transient cases, as though they originated within the city limits; pay the salary of the Superintendent of the pest house, and pay the Health Officer and bear the expenses of all fuel and medicines used by quarantined persons within the city limits, and the county is to discharge a like duty where the quarantine is declared against the premises outside the city limits.

The county is to furnish all physicians to attend all smallpox cases, whether in the city or in some other part of the county; purchase all medicines used at the pest house, and provide separate premises for white and black patients at the pest house. Both county and city shall be alike diligent in the prosecution of the sanitary laws, and the County Physician shall be empowered to declare a quarantine on all roads leading into Fort Worth, where conditions may justify such a move.

Holyoke, Mass.—City Solicitor M. J. Griffin has decided that the Board of Public Works is acting within its legal rights in awarding contract for repair and alteration of the Sergeant Street School to a company of which one of the partners is at the present time a member of the Board of Aldermen. Mr. Griffin in support of his opinion cites the American and English Encyclopædia of Law, which states "that a person contracting for services to be rendered to a municipality was an officer thereof does not render the contract illegal, provided the procurement of rendition or supervision of such services was outside of the officer's official duties." The Solicitor further says: "In the case before the Board it is understood that public proposals were asked for the doing of certain work, and that the lowest competitive proposal submitted in response was from a firm one of the members of which is a member of the Board of Aldermen, whose official duty would not in any manner bring him into contact with said work."

Joliet, Ill.—City Sealer F. Kramer, Jr., as the result of investigations in his department, has discovered that the computing scales used by the merchants are short weight in the proportion of seven out of every ten, and in many instances the spring scales had been set for a 14-ounce pound. Wholesale oil measures were found short because they had been dented, and instead of receiving one hundred gallons, the merchants were receiving but ninety-four. The saloons were also offenders, and they have now put up signs stating that they are selling by bottle and not by measure, while the peddlers, who carry a standard measure to show if their honesty is questioned, will take the seal off a basket and affix it to a "short measure" if they feel so inclined. Modifications of the ordinance are being demanded to provide for burning the sealer's O. K. into wooden measures.

Manchester, N. H.—Complying with the law passed at the last session of the Legislature in relation to the destruction of gypsy and brown-tail moths, the Street and Park Commission proposes to distribute about 20,000 notices among Manchester property owners, calling attention to its provisions, which require that on any parcel of land infested with gypsy or brown-tail moths, the moths and the eggs, caterpillars, pupæ, and nests thereon be destroyed within a reasonable time, to be fixed by the officer or Board and specified in the notice. It is understood that the notices, which the Street and Park Commission will issue, will be delivered at the residences of the property owners instead of being forwarded by mail.

Memphis, Tenn.—So many complaints have been received by Mayor James H. Malone that the new signs which designate the names of the streets have been completely ruined, effaced, or abused in some way, that he has instructed Chief of Police George T. O'Harer to issue an order to patrolmen to watch for and arrest any persons, large or small, detected in the malicious work. The Mayor says the signs have been placed at a great cost upon the almost unanimous demand of the people of Memphis, are patterned after late models, that to repair or replace them will be even more expensive than the original work, and that unless some step is taken to protect the public interest the people will suffer a great loss. He says anyone caught mutilating a street name sign will be punished, regardless of family or position, age or business.

New York, N. Y.—The New York City Railway Company has received an order from the Public Service Commission to increase the number of cars on the Fourth Avenue and Madison Avenue lines. A schedule has been drawn up by the Commission, directing the number of cars that must be operated each hour, and it is stipulated that in the rush hours as many as 360 cars shall be operated. The Railway Company proposes to install the new pay-as-you-enter cars, 48 feet long, or 11 feet longer than the present type, with longitudinal seats for 36 persons within. The large platforms, capable of holding twenty people, will be divided by a railing to separate the incoming from the outgoing passengers, entrance being restricted to the rear platform. The cars will be lighted by three rows of incandescents in the ceiling, and colored lights on the front of the car will indicate its destination.

Washington, D. C.—During the month of October the Board of Condemnation of Unsanitary Buildings of the District served one hundred and seven notices on one hundred and seven premises, 90 per cent. of which will probably be demolished, as being unsanitary and dilapidated, and otherwise unfit for human occupancy. These figures demonstrate greatly increased activity on the part of the Board, as during the fiscal year ending June 30 last, only four hundred and forty-nine notices were served, and less than 60 per cent. demolished. It is anticipated that more than one thousand unsanitary buildings will be completely destroyed. This Board, which was created by a special act of Congress May 1, 1906, is composed of Capt. William Kelly, Assistant Engineer Commissioner; Snowden Ashford, Building Inspector, and Dr. William C. Woodward, Health Officer. The Board did not confine its attention to any particular neighborhood, and the majority of the premises recently condemned were located on public thoroughfares, although as a general rule such proceedings are confined to alleys and courts. The members of the Board are of the opinion that bad housekeeping is the principal cause of the unsanitary conditions in the city, and that great benefit would be derived by the establishment of a school where the ignorant and lazy might be taught to properly care for themselves and their homes.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

ROADS AND PAVEMENTS

Manchester, Roadways in. By U. S. Vice-Consul John W. Thomas. 1 p. U. S. Consular and Trade Reports, October 19.

Paris, the Streets of. By Ralph D. Blumenfeld. 13 pp. Illustrated. Outlook, November.

French Road Treatment. By Consul W. H. Hunt, St. Etienne. 1 p. U. S. Consular Reports, October 19.

Turkish Public Roads. By U. S. Consul E. L. Harris. 1 p. U. S. Consular and Trade Reports, October 19.

United States, Public Roads of the. Editorial review of statistics of the office of public roads. 1 p. Engineering Record.

Good Roads for the People. By W. Pierrepont White. 8 pp. Illustrated. Outing, November.

Congestion, For Relief of City's. 2 pp. Worcester Magazine, September.

Trees, Roadside. 2 pp. Good Roads Magazine, October.

Hydraulic Sluicing a Highway Embankment, Cost of. 1 p. Engineering-Contracting, October 9.

Sand Asphalt Roads in Florida. 1-3 p. Good Roads Magazine, October.

Retaining Wall, Melwood Avenue, Pittsburg, Pa. 1 p. Illustrated. Engineering Record, September 28.

Concrete Construction of Riverside Drive Extension. By H. C. Judson. 4 pp. Illustrated. Good Roads Magazine, October.

Viaduct at Atlanta, Nelson Street. 1 p. Illustrated. Engineering Record, October 12.

Back-filling Trenches. Abstract of paper read before the American Society of Municipal Improvements. By George C. Warren. 2-3 p. Engineering News, October 10. Engineering-Contracting, October 9. Good Roads, October. Engineering Record, October 5. Municipal Journal and Engineer, October 9.

Restoring Street Trenches. 1-3 p. Editorial. Municipal Journal and Engineer, October 9.

Macadam Road in Maryland, Cost of a. 2-3 p. Engineering-Contracting, September 25.

Methods and Cost of Building Macadam Roads in the State of Washington. 1 1-3 pp. Engineering-Contracting, October 2.

Granite Top Macadam Pavement in St. Paul, Minn. 1-2 p. Engineering Record, October 19.

Tarring Roads. Review and comments on a report to the Bureau of Public Roads by M. Janel. By Georges Levy. 2 pp. La Technique Sanitaire, October 1.

Asphalt Plant, Cincinnati, O. 1 1-2 pp. Illustrated. Municipal Journal and Engineer, October 30.

Concrete Pavements Giving Entire Satisfaction in Windsor, Ont. By George S. Hanes, B.Sc., City Engineer, Windsor, Ont. 1 p. Illustrated. Concrete, October.

Brick Streets in Chicago. 2 pp. Illustrated. Good Roads Magazine, October.

Cost of Production of Common and Paving Brick at Carnegie, Pa. By W. M. Fickes. From the Transactions of the American Ceramic Society. 5 pp. Brick, October.

What Constitutes a First-class Paving Brick. By W. P. Blair. 2 1-2 pp. Illustrated. Brick, October.

Cobble Stone Pavement, Cost of Taking up and Relaying a. 1-2 p. Engineering-Contracting, October 2.

Tracks, Paving Between. From a paper read before the Indiana Engineering Society by B. J. T. Jeup. 1 p. Municipal Journal and Engineer, October 30.

Maintenance of the Paving of Tramway Tracks. 1 p. Surveyor, October 18.

Future of Street Paving. Abstract of discussion by P. W. Henry and Major Beach on paper by George W. Tillson before the American Society of Municipal Improvements. 3-4 p. Municipal Journal and Engineer, October 16.

Department of Street Control. A proposed department of government for New York City. 1 p. Municipal Journal and Engineer, October 30.

Traffic Regulations, Street. From a paper by W. Noble Twelvetrees before the Civil and Mechanical Engineers Society of England. 3-4 p. Illustrated. Municipal Journal and Engineer, October 30.

London Street Traffic Regulations. By W. Noble Twelvetrees, M. I Mech. E. 1 1-2 pp. Illustrated. Surveyor, October 4.

Hygiene of Public Thoroughfares. Paper read before the International Congress for Hygiene and Demography by M. Guglielminetti. 1-4 p. Engineering News, October 24.

Town Planning at Yarmouth. 1 p. Illustrated. Municipal Journal, September 20.

Building Line of Streets. Editorial comment on Public Health Act of 1888 and the London Act, 1894, citing legal decisions. 1 p. The Surveyor, October 4.

Names of Chicago Streets. 1 p. Illustrated. Real Estate News, October.

Defective Sidewalk Openings, Liability for. 2-3 p. Real Estate News, October.

SEWERAGE AND SANITATION

Sewerage Scheme, Bilston. Paper read by J. P. Wakeford before the incorporated association of Municipal and County Engineers. 6 pp. Illustrated. Contract Journal, September 18. 4 pp. Illustrated. The Surveyor, September 20.

Large Sewer Project in St. Paul, Minn. 1 p. Illustrated. Engineering Record, October 5.

Favorable Report on Calumet Drainage Canal. 1 1-2 pp. Engineering Record, October 26.

Rhos Drainage. 1-2 p. Illustrated. Contract Journal, October 2.

Law of Combined Drainage. By A. Powell Coke. 1 p. Local Government Journal, October 12.

Reinforced Concrete. Monster Sewer of, at Cleveland, O. 3 pp. Illustrated. Concrete, October.

Riveted Steel Pipe Sewer Outlet Extension, at Blackpool, England. 1-3 p. Illustrated. Engineering News, September 26.

Excavating with Potter Trenching Machine for 16-Foot Sewer. 1 p. Illustrated. Engineering-Contracting, October 9.

Cost of Trenching, Pipe Laying and Back-filling for Pipe Sewer Construction at Centreville, Ia. 3 1-3 pp. Engineering-Contracting, October 16.

Contractors' Liability for Failure. Decision in suit on account of failure of sewers in New Orleans. 1 1-2 pp. Municipal Journal and Engineer, October 30.

Testing Pipe of Clay and Concrete. Abstract of report of Burchartz and Stock, Royal Building Material Testing Department, Gross-Lichterfelde. 3 pp. Municipal Engineering, October.

Sewage Disposal at Kew Beach. Paper read before the American Society of Municipal Improvements. By C. H. Rust. 1 1-2 pp. Municipal Journal and Engineer, October 16. 1-3 p. Engineering News, October 10.

Stratford-on-Avon Sewage Works. Paper read by Herbert D. Bell before the Association of Managers of Sewage Disposal Works. Surveyor, September 20.

Tuckahoe's Sewage Disposal. 1 1-2 pp. Illustrated. Municipal Journal and Engineer, October 23.

Visit to Stratford-on-Avon Sewage Works. Association of Managers of Sewage Works. 1 p. Illustrated. Contract Journal, September 18

Sewage Purification Plant at Reading, Pa. 4 1-2 pp. Illustrated. The Engineering Record, October 5.

Reports on Sewage Disposal. 1 p. Editorial. Municipal Journal and Engineer, October 16.

Maintenance of Small Works for Treating Sewage and Water. 1-2 p. Engineering Record, September 27.

Percolating Beds, Time of Passage of Liquids Through. By William Clifford, Assoc. M. Inst. C.E. 1 p. The Surveyor, October 4.

Sprinkling Filter Data. 3-4 p. Municipal Journal and Engineer, October 23.

Nitrification of Sewage. By George Reid. From the proceedings of the Royal Society. 2 1-2 pp. Illustrated. Contract Journal, September 18.

Sand Filtration of Sewage, Intermittent. By Drs. Kammann and Carnwath. Translated and condensed by J. H. Johnstone. The paper was originally read before the State Institute of Hygiene at Hamburg. 2 pp. Diagrams. The Surveyor, September 27.

Sewerage and Sewage Purification. Up-to-date Experiences on the Separate System of Sewerage. Paper read before the International Congress of Hygiene and Demography. By Carl Guenther. 1-4 p. Engineering News, October 24.

Electrical Sterilization of Sewage. Editorial on paper by George W. Fuller before the Boston Society of Civil Engineers. 3-4 p. Electrical Review, October 12.

Stream Pollution, Relations of, and Water Purification. By C. C. Brown. 2 pp. Illustrated. Municipal Engineering, September.

Typhoid Fever, Modern Methods of

Combating. Paper read before the International Congress of Hygiene and Demography by Counselor Schneider. 1-3 p. Engineering News, October 24.

Engineering Studies of a Typhoid Outbreak at the State Hospital, Trenton, N. J. Investigations by the New Jersey State Sewage Commission, assisted by Prof. Earle B. Phelps. 2 pp. Engineering News, October 3.

Disinfecting Stations and Appliances. By H. C. Queree. 3 pp. Illustrated. Surveyor, October 11.

Germ Enemies, Plain Labels on. By William Hanna Thomson, M.D. 8 pp. Illustrated. Everybody's, November.

International Congress for Hygiene and Demography. Held at Berlin, Germany, September 22-29. 1 1-2 p. Engineering News, October 24.

National Department of Health, Necessity of Co-operation in Movements for a. Paper read before the American Academy of Medicine. By John Pease Norton. 6 pp. Bulletin of the American Academy of Medicine, October.

Mortality Statistics. Review of the U. S. Census Bureau Report for 1905. 3 pp. Illustrated. Popular Science Monthly, November.

Baths of Manhattan, Municipal. Robert G. Todd. 7 pp. Illustrated. Charities and Commons, October 19.

Milk Supply of Edinburgh, with suggestions for the improvement of milk supplies generally. By Robert Robinson. 4 1-2 pp. Journal of the Royal Institute of Public Health, October.

Tuberculosis from Milk Supplies. Editorial. 1 1-2 p. Municipal Journal and Engineer, October 23.

Public Health, Hints to Councillors About. By H. G. Nyblett, M.D. 1 1-2 p. Western Municipal News, October.

Poor Law Dairy Farm. An account of the origin and present operation of the Sheffield Guardians' Dairy Farm. 2 pp. Illustrated. Municipal Journal, October 11.

WATER SUPPLY

Water Supply System of Dublin. A paper read before the Cork Congress, 1906. By J. G. O'Sullivan, Deputy Surveyor, Dublin. 3 pp. Journal of the Royal Institute of Public Health.

Proposed Water Supply Scheme for Monmouthshire. 2 pp. Illustrated. Water, October 15.

Novel Water Works System of Bellingham. 2-3 p. Illustrated. Fire and Water Engineering, October 9.

Wrexham and East Denbigshire Water Supply. Opening of the new Ty Mowr reservoir. 1 p. Water, October 15.

Nashville's Deteriorated Water Works. Describing results of investigations by the Board of Trade. 3 pp. Illustrated. Public Service, October.

Modern Tale of Two Cities; or the object lessons furnished by the story of the water supply of Los Angeles and Denver. 2 pp. Arena. October.

Valuation of Water Works Plants. Methods used by appraisement boards for determining physical value, going value, and franchise value. Abstract of paper read before Wisconsin League of Municipalities by Charles B. Burdick. 4 pp. Midland Municipalities, September.

Artesian Bored Tube Wells, Water Supplies by Means of. By Herbert F. Broadhurst. 3 pp. Illustrated. Water, September 16.

Valley-dikes, Experiences on Water Collected by. Paper read before the International Congress of Hygiene and Demography by Prof. Fraenkel. 1-2 p. Engineering News, October 24.

Diseases, Water Borne. Abstract of a paper by S. L. Jepson, M.D., read before Central Water Works Association. 1 p. Fire and Water Engineering, September 25.

Lead Poisoning, Public Water Supplies and. Editorial. 1 p. Surveyor, September 20.

Polluted Spring Water. Statement of conditions prevailing at Meadeville, Pa. 1-2 p. Municipal Journal and Engineer, October 16.

Water Purification. Plant of Harrisburg, Pa. The filters and their operation. 10 pp. Illustrated. Municipal Engineering, October.

Pittsburg Filtration Works. 3-4 p. Illustrated. Engineering Record, October 5.

Examination of Water Purification Plant at Owensboro, Ky. By Phillip Burgess, Assoc. M. Am. S. C. E. Special Assistant Engineer, Ohio State Board of Health. 1 1-3 pp. Engineering Record, September 28.

Mechanical Filtration, Development of. By Robert E. Milligan. From a paper read before the Western Society of Engineers. 5 1-2 pp. Illustrated. Water, September 16.

Electrical Purification of Water, Direct and Indirect Methods of. By Henry Leffman. From the Journal of the Franklin Institute. 3 pp. Illustrated. Water, October 15. 2 pp. Illustrated. Contract Journal, September 25.

Ozone in Water Purification. From a paper read by James Howard Bridge in the Journal of the Franklin Institute. 1 1-2 p. Illustrated. Water, September 16.

Sterilizer for Drinking-water, A New. By Dr. K. Kutscher. 2 pp. Gesundheits-Ingenieur, September 14.

Meters. Paper read at the Eleventh Annual Convention, Central Water Works Association. By A. L. Holmes. 1 1-2 p. Water and Gas Review, October.

Notes on the Meter Question. Abstract from a discussion at a recent meeting of the New England Water Works Association. By Clemens Herschel and Willis Chipman. 2 pp. Water and Gas Review, October.

Simple Velocity Meter. By G. S. Coleman, Assoc. M. Inst. C. E. 1 p. The Surveyor, September 27.

Waste Water Investigations in Philadelphia. 2 pp. Tables. Engineering Record, October 5.

Pumps and Pumping Machinery. By Joseph H. Hart. 2 pp. Electrical Review, October 19.

Centrifugal Pumps. Two general classifications, volute and turbine, and their subdivisions. By E. F. Doty. 1 p. Illustrated. Engineer, October 15.

Electric Pumping Plant. Recent Installation at Schenectady. 3-4 p. Illustrated. Municipal Journal and Engineer, October 16.

Reservoirs, the Walshaw-Dean. 1 p. Water, October 15.

Ferro-Concrete Reservoir at Gosport. 2 1-2 pp. Illustrated. The Surveyor, October 4.

Steel Main Under a Railway, Carrying a. 1-2 p. Illustrated. Engineering Record, October 5.

Disjointing Cast-iron Water Mains. Discussion at the Annual Convention of the Central States Water Works Association. 1-3 p. Engineering News, October 10.

Hauling Pipe, Cost of. 1-3 p. Municipal Journal and Engineer, October 2.

Tunnel for Water Pipes under Mystic River, Boston, Mass., Cost and Methods of Construction of. By Caleb Mills Saville. 2 1-2 pp. Illustrated. Engineering News, September 26.

Aqueduct, Los Angeles. "Desert City's Far Reach for Water." By William R. Stewart. 2 1-2 pp. World's Work, November.

Examination Questions for the Positions of "Assistant Engineer in Charge of Section" and "Topographical Draftsman," Board of Water Supply, City of New York. 3-4 p. Engineering News, September 28.

STREET LIGHTING AND ELECTRIC POWER

Street Lighting in the City of New York. By H. T. Owens. 1 1-2 p. Illustrated. Progressive Age, October 15.

Ornamental Street Lighting in Los Angeles. 1 p. Illustrated. Municipal Journal and Engineer, October 30.

Public Lighting of the City of London. From Journal of Gas Lighting, London. 1 p. Illuminating Engineer, September.

Electric Light for Streets and Municipal Buildings. By Mayor Robb, Valleyfield, Que. Paper read before the Union of Canadian Municipalities. 1 p. Canadian Municipal Journal, October.

Flaming Arc Lamps Abroad. 3 pp. Illustrated. Electrical Review, September 28.

Municipal Electrical Supply. By Mayor D'Arcy Scott, Ottawa. 2 1-2 pp. Paper read before the Canadian Union of Municipalities. Canadian Municipal Journal, October.

New York City Municipal Lighting Plant. Communication from E. R. Knowles. 1 p. Electrical Review, October 5.

Industrial Purposes, Supply of Electrical Energy for, by the Manchester Corporation. 3 pp. Illustrated. Electrical World, October 26.

History of Hydro-Electric and Gas Development in Central California. A paper read by John A. Britton at the Fifteenth Meeting of the Pacific Gas Association. 2 1-2 pp. American Gas Light Journal, October 7.

Gas Light, Inverted. Paper read at the First Annual Convention of the Illuminating Engineering Society by T. J. Little, Jr. 5 pp. Illustrated. Illuminating Engineer, September.

Philadelphia Gas Works under Private Operation. By Thomas L. Hicks. 3 pp. World To-day, October.

Gas Meters, Inspection of. Text of Erie, Pa., ordinance. Bulletin of League of American Municipalities.

State Commission, Control of Gas Companies by. By Alexander C. Humphries. Paper read before the joint meeting of the Street Railway Association of the State of New York and the Empire State Gas and Electric Association. 2 pp. Progressive Age, October 15.

Gas Association, Work of the Michigan. Address by Victor F. Dewey, President. 1 p. Progressive Age, October 1.

Account of the Second Annual Meeting of the American Gas Institute. Editorial correspondence. 1 1-2 p. American Gas Light Journal, October 21.

Acetylene Town Lighting, Progress of, in Germany. 1 p. Acetylene Journal, October.

Candle-Power Standards. Editorial. 1 p. Electrical Review, October 19.

Underground Conduits in Nashville. 1 p. Illustrated. Municipal Journal and Engineer, October 9.

Electric Conduits in Auburn. Municipally constructed, owned, and operated. 1 1-2 p. Illustrated. Municipal Journal and Engineer, October 16.

Method of Laying Vitrified Conduits for Electrical Cables, and a collapsible core for forming conduits in concrete without use of vitrified ducts. By F. Lavis. 1 p. Illustrated. Engineering News, October 3.

Depreciation. Paper read before the Second Annual Meeting of the American Gas Institute by A. C. Humphreys. American Gas Light Journal, October 28.

FIRE AND POLICE

Fire Apparatus and Street Pavements. Editorial. 1-3 p. Municipal Journal and Engineer, October 2.

Couplings, Hose and Hydrant. 4 pp. Insurance Engineering, October.

Hydrants, Frozen Fire. 1 p. Municipal Journal and Engineer, October 2.

High Pressure Pumping Plants. 13 pp. Illustrated. Insurance Engineering, October.

Fire Boats and Their Work. Description of boats in use in New York City and in some Lake cities. 2 pp. Illustrated. Municipal Journal and Engineer, October 2.

Fireboat Protection. Paper read at the International Association of Fire Engineers, Washington, D. C. 2 1-3 pp. Fire and Water Engineering, October 16.

Statistics, Fire Department, including tabular statement. 1 1-2 p. Municipal Journal and Engineer, October 2.

New York Fires, their Causes and Number. 1-2 p. Fire and Water Engineering, September 25.

Mounted Police. Value of service and its cost in New York and Newark, N. J. 2 pp. Illustrated. Municipal Journal and Engineer, October 23.

Police Education. By Chief Harrison, Westmount, Que. Paper read before the Chief Constables Association of Canada. 1 p. Canadian Municipal Journal, October.

Efficiency and Promotion. By Chief Constable Slemin, Brantford, Ont. Paper read before the Chief Constables Association of Canada. 2 pp. Canadian Municipal Journal, October.

History of Police in the Ancient and Modern State, Glance at the. 1 1-2 p. Revista Municipal, October 1.

Trial by the Populace. By Deputy Chief Constable Stack, Toronto. Paper read before the Chief Constables Association of Canada. 4 pp. Canadian Municipal Journal, October.

GOVERNMENT AND FINANCE

City Government by Fewer Men. Charles W Eliot. 7 pp. World's Work, October.

Municipal Government by Board (or Commission) vs. Mayor and Council. By F. E. Chadwick, Rear Admiral, U. S. N. 6 pp. Bulletin of the League of American Municipalities, October.

By Emerson Coatsworth. 2 pp. Bulletin of the League of American Municipalities, October.

By Dr. William H. Allen. 1 p. Bulletin of the League of American Municipalities, October.

By J. B. Mahoul. 2 1-2 pp. Bulletin of the League of American Municipalities, October.

By R. G. Rhett. 3 1-2 pp. Bulletin of the League of American Municipalities, October.

By James M. Head. 4 pp. Bulletin of the League of American Municipalities, October.

Municipal Commissions of Saskatchewan. By J. Spencer Page, Secretary. Paper read before the Union of Canadian Municipalities. 1 p. Canadian Municipal Journal, October.

Swiss Referendum as an Instrument of Democracy. By J. A. Hobson. 14 pp. Contemporary Review, October.

Direct Legislation, Bugaboo of. A calm review of objections urged by the opposition. By Linton Latterwait. 7 pp. Arena, September.

State Commissions, Control of Gas Companies by. Paper by Dr. Alexander C. Humphreys before the Joint Meeting of the Street Railway Association of New York and the Empire State Gas and Electric Association. 2 pp. American Gas Light Journal, October 14.

Work of the Public Service Commission, Second District, and its policies with relation to the corporations under its supervision. By Hon. Frank Stevens. 2 pp. Progressive Age, October 15.

Municipal Ownership of Public Utilities. Paper read before the Central Water Works Association. By John W. Hill. 1 1-3 pp. Engineering News, October 10.

Municipal Ownership Discussion. 1 1-2 p. Municipal Journal and Engineer, October 9.

Municipal Ownership Failures. Examination of affairs of nine gas-lighting plants reported as such. 1 1-2 pp. Municipal Journal and Engineer, October 2.

Report of the National Civic Federation. Part II. 4 pp. Bulletin of the League of American Municipalities, September.

Will Public Ownership Increase or Diminish Political Corruption? By Clarence Arthur Royse. 12 pp. Arena, October.

Municipal Ownership, its Difficulties and Advantages, as illustrated in the cities of Fort William and Port Arthur. Paper read before the Union of Canadian Municipalities. By ex-Mayor Dyke, of Fort William, Ont. Canadian Municipal Journal, October.

Is There a Bureau of Misrepresentation? 1 1-2 p. Bulletin of League of American Municipalities, September.

Private vs. Public Ownership. Abstract of Report of Committee on Investigation. 2 pp. Illustrated. National Civic Federation Review, September.

Civic Federation's Fairy-tale in the Interest of Private Ownership of Public Utilities, and Facts Which Prove Its Munchausen-like Character. Editorial. 1 p. Arena, September.

National Civic Federation and Its New Report on Public Ownership. By Frank Parsons. 7 pp. Arena, October.

Regulation vs. Municipal Ownership. Paper by H. J. Gonden at the Eleventh Annual Convention of the League of American Municipalities. 3 pp. Public Service, October.

Public Control from the Corporate Standpoint. By Everett W. Burdett. Paper read before the joint meeting of the Street Railway Association of the State of New York and the Empire State Gas and Electric Association. 1 1-2 p. The Progressive Age, October 15.

Modern Municipality, Concerning the. From the work of Dr. Emilio Blanco Martinez. Revista Municipal, October 1.

Good Government, American City the Storm Center in the Battle for. 7 pp. Arena, October.

Criminal Government and the Private Citizen. A Study of San Francisco. By George Kennan. 12 pp. Illustrated. McClure's Magazine, November.

The Moat and the Beam. A fact novel. The Clash of Classes in San Francisco. By Lincoln Steffens. 15 pp. American Magazine, November.

Municipal Budget. Editorial. 1 p. Independent, October 3.

Principles of Budget Making. By Frederic A. Cleveland, Ph.D. 11 pp. The Journal of Accountancy, October.

Municipal Financing, Problems of. By George J. Kinnaid, City Commissioner, of Edmonton, Alta. Paper read before the Union of Canadian Municipalities. 2 pp. Canadian Municipal Journal, October.

Sinking Funds are Profits. A reply to the *Accountant.* 1 p. Municipal Journal, October 18.

Uniform Accounting in Michigan. 1 1-2 p. Bulletin of the League of American Municipalities, September.

Taxation of Site Values, with Reference to the Distribution of Population. Paper read before the Congress of the Royal Economic Society. By Leonard Darwin. 14 pp. Economic Journal, September.

Non-Taxation of Service Companies. Paper by Allen Ripley Foote, read before the Eleventh Annual Convention of the League of American Municipalities. 3 pp. Public Service, October.

Assessment Laws. Address by John T. Hall, at Alberta Convention of Municipalities. 4 pp. Western Municipal News, October.

Bond Sales, Municipal. Data concerning sales in August. 1 1-4 p. Municipal Journal and Engineer, October 2.

REFUSE COLLECTION AND DISPOSAL

Disposal of Municipal Waste. By W. F. Morse. 4 pp. Municipal Journal and Engineer, October 2.

Refuse Disposal in Urban Districts. Editorial. 1-2 p. The Surveyor, September 27.

Garbage Disposal at St. Louis. 1 p. Municipal Journal and Engineer, October 2.

Garbage Disposal and Street Cleaning. By Alexander Potter. 1 1-2 p. Municipal Engineering, October.

Destructor and Mechanical Garbage-Dryer for the city of Pforzheim. By City Architect Herzberger and Consulting Engineer Morave, of Pforzheim. 8 pp. Illustrated. Gesundheits-Ingenieur, October 5.

Utilization of Waste Products in Glasgow. 1 p. Revista Municipal, October 15.

Garbage Reduction Process at Toledo. Abstract of a paper read before the Central Water Works Association by Thomas R. Cook. 1-2 p. Engineering Record, October 12.

PARKS AND CITY BEAUTY

Park Maintenance. Editorial. 1-2 p. Municipal Journal and Engineer, October 2.

Dredge. Francis J. Simmons, at Lincoln Park, Chicago. By Martha H. Buhre. World Today, October.

Golf Links, Municipal. 1 p. Municipal Journal, September 20.

Horticulture, Civic, and Civic Improvement. Paper read by Warren H. Manning before the Congress of Horticulture, Jamestown Exposition. 2 pp. Park and Cemetery, October.

Transplanting Large Trees. By Frank H. Sweet. 1 p. House and Garden.

Garden City and Child Life. By Fred. W. Rogers. 6 pp. Illustrated. Progress, July.

Garden Suburb. Editorial. 1-2 p. Surveyor, September 20.

Beautifying German Towns. 1-3 p. Municipal Journal and Engineer, October 16.

New York, the City Beautiful. Magnificent Future of the Great Metropolis. By Herbert N. Casson. 9 pp. Illustrated. Munsey, November.

Municipal Betterment. Reviewing work in Greenville, N. C., Cleveland, O., and Rochester, N. Y. Editorial. 1 p. Independent, October 10.

Water Front and the Working People. Editorial. 1 p. Independent, September 26.

TRAFFIC AND TRANSPORTATION

Traction Matters in New York—Receiver for New York City Company. Containing extracts from a bill in equity asking for a receiver. 2 pp. Street Railway Journal, September 28.

New York's Street Railways. Editorial. 1 1-2 p. Independent, October 10.

Chicago Union Traction Reorganization. By Robert M. Martin. 3 pp. Moody's Magazine, October.

Electric Railway Situation of To-day. Paper read before the joint meeting of the Street Railway Association of the State of New York and the Empire State Gas and Electric Association. By Henry J. Pierce. 1 1-2 p. Progressive Age, October 15.

Regulate Street Railway Fares, Minneapolis Cannot. 1 p. Bulletin of League of American Municipalities, September.

Solving a Great City's Transportation Problem. New York's attempt to regulate its street railways by the Public Utilities Commission. 6 pp. World's Work, November.

New York's New Railway Terminals. By Warwick S. Carpenter. 8 pp. Illustrated. Industrial Magazine, October.

Solving a Transportation Problem. Description and purpose of the Belmont tunnels. By S. S. Brewer. 3 pp. Illustrated. American Industries, October 15.

Tramways Survey. Presidential address delivered by Mr. J. M. McElroy, General Manager of the Manchester system, before the Municipal Tramways Association. A discussion of municipal ownership. 2 pp. The Municipal Journal, September 27.

Public Relations, Report of the Committee on. Presented before the American Street and Interurban Railway Association. 2 1-2 pp. Electric Railway Review, October 26.

Municipal Street Car Service of Glasgow and Its Significance, Past Year's Record of. Editorial. 1 p. Arena, September.

Traffic Regulation, London Street. By W. Noble Twelvetrees. Presidential address delivered before the Civil and Mechanical Engineers Society. 4 pp. Illustrated. Contract Journal, October 9.

Headways in Congested Districts. 1-2 p. Electrical Railway Review, October 19.

Subway, Work of the Paris Metropolitan. By C. L. Durand. 3 1-2 pp. Illustrated. Electrical Review, October 12.

Paris Subway Stations. 4 pp. Illustrated. American Architect, October 5.

Market Street Subway, Philadelphia. 2 1-2 pp. Illustrated. Engineering Record, October 12.

Underground Workings in New York City. By H. T. Hildage. 22 pp. Illustrated. Engineering Magazine, October.

Tunnel, Selby Hill, of the Twin City Rapid Transit Company. 4 pp. Illustrated. Electric Railway Review, September 28.

Life in an Under-river Tunnel Tube. By A. W. Kolker. 10 pp. Illustrated. Appleton's Magazine, October.

Detroit River Railroad Tunnel. 1 p. Illustrated. Municipal Journal and Engineer, October 16.

Unusual Plant for Constructing a Submarine Tunnel at Chicago. 4 pp. Illustrated. Engineering Record, October 26.

Tracks of the Chicago Street Railway, Rehabilitation of the. 3 pp. Illustrated. Engineering Record, October 19. 3 1-2 pp. Street Railway Journal, October 26.

Pay-As-You-Enter Car, Chicago. 1 p. Illustrated. Street Railway Journal, September 28.

New York Cars of the Pay-As-You-Enter Type. 2 pp. Street Railway Journal, October 26.

MISCELLANEOUS

Description of San Leandro (Cal.). By W. J. Locke. 8 pp. Illustrated. Outwest, September.

Oakland and Roundabout. Descriptive article. 16 pp. Illustrated. By Joseph E. Baker. Sunset, October.

Chicago's Most Unique Suburb. By F. E. M. Cole. 3 pp. Illustrated. Suburban Life, November.

Views of Old-Time Philadelphia. Drawings by W. H. Bartlett. Descriptions by N. P. Willis. 8 pp. Illustrated. New England Magazine, November.

Constantinople: The Edge of the Orient. By F. L. Harding. 3 pp. Illustrated. Travel Magazine, October.

Fabled Cities Submerged. By Arthur H. J. Keane. 1 p. Scientific American, September 28.

Industrial City, The. Editorial. 1 p. Revista Municipal, October 1.

The Evolution of a Modern Industrial Town. By C. H. E. Leppington. 12 pp. Economic Journal, September.

Municipal Matters in Great Britain and America and on the Continent. By W. Calder. Assn. M. Inst. C. E., City Surveyor of Prahran, Melbourne. 3 pp. The Surveyor, September 27, October 4, October 11, October 18.

Improvements, Some Considerations on Modern City. Editorial. 2 pp. Architectural Record, October.

Cleveland, Tom Johnson and the City of. By Frederic C. Howe. 16 pp. Illustrated. Reader, October.

Interrelations, Municipal. Editorial. 1 p. Revista Municipal, October 1.

Strikes, City Without; Manchester, N. H., where the lowest wage is kept above the cost of comfortable living. By French Strother. 3 pp. World's Work, November.

Economy, The Personal Element in Municipal. A paper read at the Home Counties Branch, on February 15, 1907. By H. Beale Collins, M.R.C.S., D.P.H., Medical Officer of Health for Kingston. 5 pp. Public Health, October, 1907.

High Buildings. "Is There a Limit?" Question of height of buildings in relation to fire risk. 1-3 p. Municipal Journal and Engineer, October 30.

Shall New York Be a City of Pyramids? 1-2 p. Leslie's Weekly, October 24.

Markets, Municipal. Experiences in Boston, Baltimore, Chicago, New Orleans, and in Paris, France. By Don E. Mowry. 2 1-2 pp. Municipal Journal and Engineer, October 23.

Cemetery, London's First Municipal By Walter Edwin Brown. 1 p. Local Government Journal, October 19.

Workhouses. Report of P. H. Bruck, Superintendent of the Columbus, Ohio, Workhouse. 1 p. Bulletin of League of American Municipalities, September.

Motor Cars for Municipal Work. Fire apparatus, street sprinklers, refuse wagons, police patrol and superintendent's runabouts. By Harry W. Perry. 5 1-2 pp. Illustrated. Municipal Journal and Engineer, October 2.

Cement Plant, Municipal, for the Los Angeles Aqueduct. 1-3 p. Engineering News, October 3.

Telephones in Great Britain, Municipal Ownership. By A. W. Holcombe. Quarterly Journal of Economics, August.

Smoke Nuisance in Large Towns. Abstract of paper by Dr. Ascher read before the International Congress for Hygiene and Demography. 1-4 p. Engineering News, October 24.

Smoke Problem. The Chemistry of Smoke Formation and Smoke Prevention. By David Townsend. 5 pp. Cassiers Magazine, October.

Bridge, Overburdened Brooklyn. Eugene S. Bisbee. Technical World, October.

Manhattan Bridge Pedestal. 2 pp. Illustrated. Engineering Record, October 19.

Municipal Bridge Terminals Commission of St. Louis. Albert T. Perkins. 9 pp. Journal of Political Economy, July.

Concrete, Cost of Mixing and Placing, in a Retaining Wall. 1 p. Engineering-Contracting, September 25.

Permeability of Concrete and Methods of Waterproofing. By Richard H. Gaines. Portion of discussion on paper presented before American Society of Civil Engineers by M. B. Fuller and Sanford E. Thompson. 1 1-2 pp. Engineering News, September 26.

Triangulation and Traverse Work in the Bronx, New York City. 1 1-2 pp. Illustrated. Engineering Record, October 5.

BOOK REVIEWS

Principles of Reinforced Concrete Construction.—By F. E. Turneaure and E. R. Maurer. New York: John Wiley and Sons, 1907. Cloth, 6x9 inches, 317 pages. Price, $3.00.

The authors, who are professors of engineering and mechanics, respectively, in the University of Wisconsin, have written this exposition of the principles of reinforced concrete construction as a textbook for students and reference book for engineers. The introductory chapter gives the history of the use of steel and concrete in combination and a review of its advantages. The succeeding five chapters present theoretical considerations. In discussing the properties of the materials, the necessary requirements of the individual elements, cement, sand, stone and steel are taken up. Discussion is given of the strength of concrete and steel, both separately and in combination, when subjected to different forces. Chapter III treats of the theory of flexure and the basis of flexure formulas. In the succeeding chapter, tests of beams and columns are given, and the method of failures explained and illustrated. Working stresses and factors of safety for beams and columns are next considered, with reference to the question of economy. The durability of reinforced concrete, its value as a means of preserving steel from corrosion and its resistance to fire are touched upon. The theoretical portion of the book is brought to a close by the presentation

of formulas, diagrams and tables. In the more practical portion of the work, the various elements of building construction relating to reinforced concrete design are grouped under the headings of beams forming a continuous surface, floor beams and girders, columns, footings and walls. In connection with these subjects consideration is given to the determination of stresses, the design of members and the arrangement of connection details. In treating of the arch an algebraic method is adopted, although certain simple graphical aids are used to advantage. Under the caption, "retaining walls and dams," the advantages of reinforced concrete for these purposes from an economic standpoint is explained and illustrated by examples. A final chapter, the tenth, discusses a few miscellaneous structures, such as simple beams, culverts, conduits and sewers.

Board of Water Commissioners, Reading, Pa. Forty-second Annual Report, 1906-7. Edward Elbert, President; Emil L. Nuebling, Superintendent and Engineer.—This report is handsomely printed and illustrated and, considering subject matter as well, is one of the best water works report issued. The population of Reading is 78,961; the water works were built in 1819 and are owned by the city. There are six sources of supply, all furnishing water by gravity except Maiden Creek, the largest, where there is a pumping station. The pumps in use were built by Henry R. Worthington and the Allis-Chalmers Company. Bituminous coal at $2.63 per ton is used for fuel. During the past year 5,411,600 pounds were used, together with an amount of wood equivalent to 1,800 pounds of coal. The total pumpage for the year was 2,135,257,590 gallons, no allowance being made for slip. The pumps worked against an average static head of 212.6 and a dynamic head of 292.1. The number of gallons pumped per pound of coal was 394. The cost of pumping, figured on pumping station expenses, was $13.057, or $6.12 per million gallons. The cost per million gallons raised one foot was $0.021.

Book of American Municipalities. An Authentic Summary of Civic Progress and Achievements. Published by the League of American Municipalities. Paper, 8x11 inches, 116 pages. Illustrated.—This book has been compiled, its introduction states, for the purpose of presenting to the public reliable information about American cities in order to kindle the interest of citizens in their cities and thus promote good government and civic progress. The method of treatment contrasts strongly with that commonly seen in the public press as it is informative rather than sensational. The dryness of census reports which prevents them from attracting the attention of the general reader is lacking, while in the matter of presenting information that is correct at the present time it is perhaps superior to the government reports. However, as only 67 municipalities are dealt with, varying in size from the largest down to a city of 5,000 inhabitants—a classification which, if complete, would include about 900 cities—the book is in reality a mere fragment of what ought to be done. It is unfortunate that there is not published in this country such a work as the Municipal Year Book, which appears annually in England.

The Use of the National Forests. U. S. Department of Agriculture, Forest Service. Gifford Pinchot, Forester, 1907. Cloth, 5x7 inches, 42 pages.—This little book is published in order that people may know what National Forests are and their true purpose and use. It is explained how they affect the homeseeker, the miner, the consumer of timber, the user of the range and the taxpayer. The department protects the National Forests, allows the wood to grow and disposes of the surplus growth. Located as they are in the dry regions, they have a favorable effect in saving the rainfall and allowing it to run off into the rivers at a comparatively regular rate. The reasonable use of the range for cattle under proper regulations is not forbidden. The business methods of the department are also explained.

PERSONALS

ACKERMAN, J. WALTER, City Engineer of Auburn, N. Y., will in future devote a part of his time to consulting practice. Mr. Ackerman designed and built a municipal electrical conduit system in the city of Auburn (described in our October 16 number), which is paying nearly 10 per cent. upon the investment.

ARNOLD, BION J., Chicago, Ill., of the Arnold Company, has been appointed Consulting Engineer for the subway system of New York City, by the Public Service Commission.

CARY, EDWARD R., City Engineer of Troy, N. Y., has notified Mayor Elias P. Mann that he will retire from the office, January 1, as, commencing from that date, the City Engineer must devote his undivided attention to city work, the salary having been increased from $3,000 to $3,500 per annum. Mr. Cary feels that he cannot devote his entire time to the place.

CLUTE, JACOB W., Mayor of Schenectady, N. Y., and Warren R. Conover, Secretary of the Municipal Civil Service Commission, recently spent a vacation in the Adirondacks on a hunting trip, but they got no bear.

COWLES, HENRY D., Captain of Police of New Haven, Conn., has just been appointed Chief of Police by Mayor Studley, to succeed Chief James Wrinn, retired at his own request, and bears the distinction of being the first Chief of Police ever appointed by a Mayor of a city in the State of Connecticut, as he was also the first Detective Sergeant and first Detective Captain ever appointed in the State. He has been on the force since April 26, 1878.

DOUGLASS, ANTHONY C., Mayor of Niagara Falls, N. Y., with his wife and his secretary, Henry D. Neff, recently visited the Jamestown Exposition and stopped at Washington, D. C., where the Mayor formerly resided, having been identified with the installation of the water system which has resulted in the present elaborate plant of the National Capital.

FARLEY, PHILIP L., formerly Assistant Superintendent of the Bergen Point Chemical Works, Bayonne, N. J., has opened an office in Long Island City, N. Y., as a civil engineer and specialist in municipal improvements.

FOBES, ALAN C., Mayor of Syracuse, N. Y., officiated at the christening of a new Italian weekly, *Risveglio Coloniale*, recently, by breaking a bottle of champagne over several copies of the first issue of the new paper on a stone in the composing room, and in a brief address lauded the Italian citizen.

FOUST, W. M., has been appointed Water Commissioner of Cheyenne, Wyo., to fill the vacancy caused by the death of W. D. Pease, and Z. E. Sevison has been appointed Assistant City Engineer.

KENT, EDMUND K., Superintendent of the Water Department of Woonsocket, R. I., has been appointed general manager of the Newport Water Company, Newport, R. I.

LACKEY, OSCAR F., Harbor Engineer of Baltimore, Md., has left for a five weeks' trip to Europe, and while abroad will spend his time investigating the dock and pier systems of Hamburg, Bremen, Amsterdam, Antwerp, Liverpool and such other cities as he may find time to visit.

LAMBERTON, JAMES M., Harrisburg, Pa., has been delegated by the City Council of Harrisburg, Pa., to supervise the construction of a flag for the city by the American Flag Company of New York City, the honor being conferred in recognition of the great amount of work he has done in connection with the matter and in assisting the Councilmanic Committee.

MACFARLAND, H. B. F., President of the Board of Commissioners of Washington, D. C., delivered an address on "The City Beautiful" at a recent dinner at Buffalo, N. Y., given by the Ellicott Club, which is named for Andrew Ellicott, the civil engineer who laid out the city of Buffalo, after he had completed George Washington's plan for the National Capital.

MAHOOL, J. BARRY, Mayor of Baltimore, Md., and Col. J. L. Wickes, Commissioner of Street Cleaning, recently made a visit to Pittsburg, Pa., to inspect the plant of the American Reduction Company, one of the bidders on the proposed contract for disposing of the garbage of the city, and while there called upon Mayor George W. Guthrie, who introduced them to the heads of all the city departments, took them on an automobile ride and arranged a theater box party in their honor.

MALONEY, M. T., Seattle, Wash., has been appointed Superintendent of Streets and Sewers, vice Charles R. Case, Acting Superintendent, who resigned.

MORSE, COL. W. F., Sanitary Engineer, New York City, spoke recently before the Buffalo Society of Natural Sciences, Buffalo, N. Y., on "The Disposal of Municipal Waste by Modern Methods." He designed the refuse disposal furnace now in use in that city.

RICE, GEORGE S., Chief Engineer of the Public Service Commission of New York City, has resigned, the same to take effect December 1, when Henry R. Seaman will assume the duties. Mr. Rice will remain in the service as Assistant Engineer in charge of construction.

RICE, MRS. ISAAC L., of New York City, the originator of the Society for the Suppression of Unnecessary Noises, recently conferred with Commissioner H. L. West of the District of Columbia for the purpose of securing what she terms a "safe and sane" celebration of the Fourth of July, she being in favor of the style of celebrations in vogue in Europe, where she claims holidays are celebrated without noisy demonstrations.

SCOTT, J. PERCY, Chairman of the Joint Ways and Means Committee of the General Council of Lexington, Ky., has tendered his resignation as an Alderman to Mayor Thomas A. Combs.

SWEENEY, JOHN J., Chief of Police of West Springfield, Mass., has resigned, and at his request been given a place in the ranks, while the Board of Selectmen has also appointed Patrolman Henry S. Phelps, who has been a member of the force for over twenty years, as Chief.

WILSON, A. A., member of the Board of Personal Tax Appraisers of the District of Columbia, who was Marshal under President Cleveland, died recently, and Louis C. Wilson has been appointed to the vacancy as a colleague to Francis Nye.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Municipal Interest

STREET IMPROVEMENTS

Board of Councilmen of City of Frankfort vs. **Brislan.**—The Kentucky statutes of 1903 authorize the Common Council of cities of the third class to pass ordinances requiring the improvement of streets and alleys by grading, etc., any portion thereof, not less in length than one block, etc. Held, that, where property is so situated that it is impracticable to divide the territory including it into squares or blocks or lay off streets or alleys, the Council may, nevertheless, order the improvement of the sidewalks, curbing, etc., providing the improvements are not less in length than an ordinary block. The statutes also authorize the Common Council of a city of the third class to pass ordinances requiring the improvement of streets and alleys by grading, etc., any portion thereof not less in length than one block. Held that, in the absence of a statutory definition of what constitutes a block, its length is a question of fact to be determined from the evidence. In an action by a city to enforce a lien on defendant's lands for street improvements, consisting of a sidewalk, etc., a counterclaim setting up that in constructing the improvements the contractor did not, as required by the ordinance, make the same in front of defendant's land, but entered thereon and constructed the sidewalk entirely on the land, encroaching thereon for the purpose, and thereby damaging defendant's property, etc., presented a good defense and entitled defendant to prove the damage, if any, to his property by reason of the taking and injury complained of.—Court of Appeals of Kentucky.

VAULTS IN STREET

Potter et al. vs. **Interborough Rapid Transit Co. et al.**—The public right to a street in the city of New York includes its use for every kind of travel and communication, for the movement of persons or property, which is reasonable or proper, and which may be necessitated, in the judgment of the public authorities, by the inadequacy of the surface for the accommodation of public travel. The right of a property owner on a public street in the city of New York to maintain vault spaces under a sidewalk exists only by virtue of a permit from the city, revocable whenever the city or public use requires such space. Plaintiffs were owners of premises on Broadway and licensees from the city of vault spaces under the sidewalk, extending along the premises and out as far as the curb line. The underground railway took a portion of such vault spaces and threatened a removal of a brick wall constructed by the plaintiffs within the line of the street, which constituted a part of the wall of a station. Held, that the removal of such wall would not be restrained, where neither the transit company nor the Board of Transit Commissioners claim a right to send passengers through the plaintiffs' building without their consent, but only claimed that the location of the wall is not authorized.—Special Term, Supreme Court of New York.

TELEPHONE WIRES IN STREETS

State ex rel. Wisconsin Metropolis Telephone Co. vs. **City of Milwaukee et al.**—Though a telephone company has, by grant of the Legislature, a franchise to lay or erect its wires in city streets, yet the city has the right of reasonable police control over the exercise of that franchise. A telephone company having, by grant of the Legislature, a franchise to lay or erect its wires in city streets, subject only to police regulation by the city, has the right to have the city on proper application prescribe such regulations as it deems necessary, but no duty rests on the city to approve a plan of streets to be used or prescribe regulations until due application be made. The duty to prescribe restrictions and regulations under the police power of a municipality for the use of streets by a telephone company having a franchise therein granted by the Legislature is primarily vested in the Common Council. A petition by a telephone company to which a franchise to use city streets had been granted, to the Common Council, praying that its petition with a map attached be referred to the Board of Public Works, that petitioner might be advised of the regulations with which it would have to comply, asks nothing of the Council which it has a right to demand; there being no law requiring a reference to the Board of Public Works, and the Council having the power to impose proper regulations.—Supreme Court of Wisconsin.

WATER RATES—EXPIRED FRANCHISE

Appleton Waterworks Co. vs. **City of Appleton.**—A city contracted with a company to pay it annually a specified hydrant rental, and the company undertook to furnish hydrants, appliances, and water, together with free water for sprinkling streets and for public buildings. Held, that the obligations were contractual and mutual; one undertaking constituting the consideration for the other. A municipal corporation is not liable on an implied contract in conflict with the statute prescribing a mode of contracting by which alone it can bind itself. Where there is an existing express contract, no implied assumpsit covering the same subject can arise. A city and a water company entered into a contract, whereby the city agreed to pay an annual hydrant rental and the company to furnish hydrants, appliances, and water, including free water for sprinkling streets and for public buildings. After the expiration of the term, the company continued to render the services called for in the contract, and the city continued to pay the agreed rental. Held, that whether the contract created a lease which by mutual consent was continued from year to year, or whether it was a contract for service so continued, neither party could after entering on performance for a year withdraw from or change the contract; and a notice by the company during a year neither created a new contract nor discontinued the existing one. The beginning of a new year's service without change of compensation at the end of a period of service for a year or more, at a stipulated annual compensation, is a new hiring for a year on the former terms, and neither party can during the year recede therefrom without cause. Where a lessee in a lease for a fixed term at an annual rent holds over, the rental fixed is binding on both parties, and the landlord cannot, after having elected to treat the tenant as holding over by mere notice that he will exact a different rental, impose a different rental on the lessee, who merely continues to occupy for the remainder of the term under the existing contract relations. Where a lessor, before or at the expiration of the term, notifies the lessee that, if he continue in possession, he will be charged a higher rent, the presumed acquiescence by the lessee to the new terms arising from his continuing in his possession is rebuttable by proof of his refusal to assent to the new terms or by his making a counter proposition. Under the Appleton City Charter requiring that the levy of taxes shall take place in November in each year, and providing that a city shall levy an amount sufficient to pay for a water supply contracted for, and authorizing a water company to contract with a city to supply it with water on such terms as may be agreed on, the contract for a water supply in existence at the time of the tax levy forms the basis of the levy for the ensuing year, and a company which had contracted to supply the city with water at an annual rental for 20 years from November 4, 1881, cannot, after continuing to perform the obligations of the contract, change the rental by notice served on the city in February to take effect March 1 following. Where, in an action against a city for hydrant rentals, the city admits its liability for an amount stipulated in a contract for a water supply, and the claim of the water company for a greater amount is not maintainable, the Supreme Court on reversal will not dismiss the action, but will order judgment for the amount due under the contract.—Supreme Court of Wisconsin.

ADVERSE POSSESSION

Agnew vs. **Pawnee City et al.**—An easement in real estate may be acquired by open, notorious, uninterrupted, adverse possession for the statutory period of ten years. An easement in a city street could be acquired by open, notorious, uninterrupted, adverse possession for the statutory period of ten years prior to the statute of 1899. The courts will take judicial notice of the fact that a city is an incorporated city, of the time when it was incorporated, and of the salient facts of its geography and history. An easement will pass by a deed or grant of conveyance, even if the word "appurtenance," or a similar expression, is not used in the instrument, if it is apparent to an ordinary observer, and naturally and necessarily belonged to the premises. Nonuser of an easement for a less period than the statutory period of ten years will not of itself work an abandonment of the right. The burden of proof is on the party alleging it to show abandonment, and such abandonment must be pleaded. Injunction will lie to protect the owner of an easement in its enjoyment. The failure to allege in the petition that the plaintiff had been in the exclusive adverse possession of the premises for ten years, and of the court to find that fact in the decree, is not material after judgment, where the proof admitted without objection shows the possession to have been of that character.—Supreme Court of Nebraska.

ACCEPTANCE OF CONTRACT

Putnam Foundry & Machine Co. vs. **Town Council of Barrington.**—To warrant the issuance of mandamus, the petitioner must show a legal right to have the act done; that the act is one which it is the plain legal duty of respondent to perform without discretion to do or refuse; that the writ will be availing; and that petitioner has no other plain, speedy, and adequate remedy. The Council of defendant town recommended to the electors that they authorize the Council to make certain improvements in town building, and that plaintiff's bid of $2,250 for the work be accepted, and the work awarded to it. The financial town meeting, acting on the report, passed a resolution appropriating $2,250, or so much thereof as was necessary for the improvement of the town building, to be expended under the supervision of the Town Council, as recommended in its report. At a subsequent meeting of the Council, a resolution to award the contract to plaintiff was rejected, and plaintiff brought mandamus against the Council to compel the execution of the contract. Held, that the acts did not constitute a contract, since the financial town meeting did not accept the bid, as it might have done. Mandamus will not lie to compel a party to complete the making of a contract. If a contract is so far completed as to entitle a party to any relief, he has an adequate remedy at law, and hence mandamus will not lie.—Supreme Court of Rhode Island.

CONTRACTOR'S BOND

Red Wing Sewer Pipe Co. vs. **Donnelly et al.**—The order in which a contract for the construction of a sewer under the charter of the city of St. Paul and the bond given to secure the payment of amounts due materialmen and laborers under that contract are executed is not material. After the bid has been accepted and approved, the bond may be executed before the contract, or the contract before the bond. Where the bond recites that the contract had been executed as of one date, the sureties are estopped from asserting that the President of the Board of Public Works actually signed the contract at another and subsequent date. The vendor of materials under such a contract is not required, as a condition precedent to an action upon such a bond, to trace the particular materials into the improvement itself, and to show that such materials were actually employed in its construction.—Supreme Court of Minnesota.

TRACK DEPRESSION, NUISANCE, DAMAGES

Liermann vs. **City of Milwaukee.**—A city controlling the work of depressing railroad tracks to abolish grade crossings is acting in performance of a duty imposed on it by law for the general welfare, and, except for property taken within the constitution, providing that no property shall be taken for public use without compensation, is not liable for resulting injuries. An averment that a railway company, while depressing its tracks to abolish grade crossings under the direction of a city, "unreasonably and unlawfully . . . obstructed for a long space of time any traffic" on designated streets, is insufficient to charge the city with authorizing a nuisance to the injury of an individual. A city creating a public nuisance is not liable to an individual for loss of prospective customers, who might have come down a street, and who might have stopped at his shop had it not been for the nuisance; the damages being the same in kind as those sustained by all, though greater in degree.—Supreme Court of Wisconsin.

LEASE OF LAND UNDER WATER

Donohue vs. **City of New York et al.**—Where, under a ten-year lease of land under water, a tenant conducted a bathing establishment, with the privilege of renewal at an increased rental, provided that if the Board of Docks of the city should proceed with the building of wharves in the city, embracing the property described in the lease, and it should be necessary to terminate the interest of the tenant in the property, the lease would be terminated on written notice, the right to terminate the lease must be exercised in good faith, and not arbitrarily. Where a tenant of the city under a ten-year lease of land under water, with right to renew, who conducted a bathing establishment, expended over $20,000 in improvements, and before the expiration of the first term of the lease was served by the Commissioner of Docks with notice that a plan for the improvement of the water front had been approved, and there was no necessity for the contemplated improvement, and no attempt had been made to carry out the plan, in an action against the city to restrain it from interfering with the tenant's possession, an injunction pendente lite would be granted, though the lease provided for its termination if the use of the premises by the authorities was necessary.—Special Term, Supreme Court of New York.

CITY ENGINEER—TENURE OF OFFICE

State ex rel. Shaw vs. **Rosewater.**—The City Engineer of a city of the metropolitan class holds the office until his successor is elected and qualified. The failure to qualify by one who has been appointed as his successor by the Mayor and confirmed by the Council, but who has not taken possession of the office and entered upon the discharge of its duties, does not render the office vacant. Upon such failure to qualify the incumbent may qualify anew under the Compiled Statutes of 1905. When it is the duty of the Mayor to appoint an officer, and he fails to do so, the Council may elect; but this power of the Council does not exist when one who has been appointed by the Mayor and confirmed by the Council fails to qualify, there being an incumbent to hold over until his successor is elected and qualified. In such case the incumbent may qualify anew, and take the office for the succeeding term.—Supreme Court of Nebraska.

POLICEMAN'S TENURE OF OFFICE

Lattime vs. **Hunt, Mayor, et al.**—The power of the Mayor and Board of Aldermen of Newburyport, established by the statutes of 1851, to appoint a Constable and assistants, or a City Marshal and assistants, and all other police officers, with power of removal at pleasure, has not been curtailed by the amendments to the charter embodied in the statutes of 1895 and 1899, nor by the Civil Service act of 1884, embodied in Revised Laws; but by virtue of section 9 thereof the exclusive power of nomination is conferred on the Mayor, subject to confirmation or rejection by the Board of Aldermen. An individual became a police officer of a city in 1894, and served continuously by annual reappointment either in the ranks or as City Marshal. While holding the latter office in 1907 he resigned, though stating that he did not intend thereby to retire from the service. The Mayor, in communicating to the Aldermen the acceptance of the resignation, stated that he had been assigned to duty as night patrolman. The nomination was confirmed by the Board. Held, that he was appointed a police officer, with power to act as such. An individual became a police officer in 1894, and served continuously by annual reappointment either in the ranks or as City Marshal. The appointment was originally made after a compliance with the rules of the Civil Service. He never retired from his office as police officer, though while employed as Marshal he received no wages as patrolman. Held, that he retained from year to year his eligibility to the position of police officer. Under the statutes of 1906, providing that every police officer shall hold office during good behavior, and shall not be removed, except for cause and for reasons given in writing, and declaring that the statutes of 1904, requiring notice to the person whose removal is sought, etc., shall be applicable, a police officer legally appointed cannot be removed without proceeding as required by the statute. A police officer, wrongfully deprived of his office, will be restored thereto by mandamus; but he will be remitted to a suit at law for arrears of salary.—Supreme Judicial Court of Massachusetts.

DAMAGE FROM MUNICIPAL LIGHT WIRE

Todd vs. City of Crete.—A city of the second class of less than 5,000 inhabitants is authorized by the law of the State to operate an electric lighting plant for municipal and commercial purposes. Where such city is engaged in the operation of an electric lighting plant for commercial purposes, and one of its wires is negligently left in a position to cause injury to one who is without fault on his part, the fact that such wire was not in use at the time the accident occurred constitutes no defense to an action for damages.—Supreme Court of Nebraska.

LIQUOR LICENSE STATUTES

City of Seattle vs. **Foster.**—Under the rule that repeals by implication are not favored, the laws of 1899, requiring a pharmacist to enter in a book sales of intoxicating liquors, and providing that no liquors shall be sold except for medical, etc., purposes, which is a part of the statute relating to the practice of pharmacy, does not impliedly repeal the laws of 1887-88, authorizing a pharmacist to sell intoxicating liquors without a license only on the prescription of a physician, which is a part of the chapter relating to intoxicating liquors.—Supreme Court of Washington.

POLL TAX

Town of Tekoa vs. **Reilly.**—The laws of 1905, authorizing a city to impose an annual street pool tax, do not, because exempting all females and males not of age, contravene the constitution requiring taxes imposed by a city to be "uniform in respect to persons and property" within the city.—Supreme Court of Washington.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work — Street Improvements — Paving, Road Making, Cleaning and Sprinkling — Sewerage, Water Supply and Public Lighting — Fire Equipment and Supplies — Buildings, Bridges and Street Railways — Sanitation, Garbage and Waste Disposal — Police, Parks and Miscellaneous — Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

State	City	Received Until	Nature of Work	Address Inquiries to
Street Improvements				
California	Redding	November 7, 10 A.M.	Clearing and building wagon road 204 miles long	S. N. Witherow, Clk. Bd. Superv.
Illinois	Chicago	Nov'ber 7, 10:15 A.M.	Seven contracts for constructing cement sidewalks	O. E. Chapin, Sec'y Bd. Local Imp.
Iowa	Des Moines	November 7, 11 A.M.	Bldg. reinforced concrete culvert, 30th and North St.	W. W. Wise, Bd. Pub. Wks.
Missouri	Kansas City	Nov'ber 7, 11 A.M.	Constructing artificial stone curb, portions 7 streets	E. A. Harper, City Engineer.
Indiana	Rockville	November 7, 1 P.M.	Constructing macadam road between Parke & Fountain Cos.	H. A. Henderson, Co. Auditor.
New York	New York	November 7, 2 P.M.	Regulating, repaving, etc., on concrete; asphalt block, 7 sts.; asphalt, 15 sts.; granite block, 3; wood block, 1; curb, etc.	H. B. Thompson, Act. Boro Pres.
New York	West Seneca	November 7, 4 P.M.	Macadamizing and improving 4 streets	Jos. Waldraff, Town Clerk.
Indiana	Fort Wayne	Nov'ber 7, 7:30 P.M.	Grading Short St.	H. W. Becker, Clk., Bd. Pub. Wks.
Tennessee	Memphis	November 7	Paving Orleans St., brick; La Clede Ave., gravel	E. M. Douglas, City Register.
Ohio	Youngstown	November 7	Grading and sewering Perry St., Summit and Weck Ave., etc.	W. H. McMillin, Clk., B. P. S.
Indiana	Indianapolis	November 8.	Performing certain road work	Wm. L. Benson, County Auditor.
Washington	Tacoma	Nov'ber 9, 10 A.M.	Grading and bridging State Road, Nos. 4 and 5	Jos. H. Snow, State Highway Com'r.
Wisconsin	Janesville	November 9, 2 P.M.	Laying combined cement curb and gutter, Chatham St.	S. B. Heddles, Chm. St. Com.
Oklahoma	Hobart	Nov'ber 9, 8 P.M.	Laying 41,700 sq. yds. brick, asphalt or bitu.; 12,600 ft. curb, etc.	A. W. Kerr, City Clerk.
Washington	Seattle	November 9	Grading, curb, concrete walks, wood cross-walks, various streets.	R. H. Thompson, City Engineer.
Indiana	Indianapolis	Nov'ber 11, 10 A.M.	Grading and paving cement sidewalks; improving Wilson St.	Blaine H. Miller, City Eng'r.
New Jersey	Camden	Nov'ber 11, 11 A.M.	Furn. 10,000 tons of stone and resurfacing turnpike	J. J. Albertson, County Engineer.
New York	New York	Nov'ber 11, 11 A.M.	Curbing, grading, regulating, etc., various streets	Jos. Bermel, Boro. Queens.
New Jersey	Atlantic City	Nov'ber 11, 8 P.M.	Repaving, etc., Pacific Ave., inc. 23,500 sq. yds. asphalt; 1,040 feet bluestone heading, drainage system, etc.	J. W. Hackney, City Engineer.
Ohio	Troy	November 12, 10 A.M.	Bldg. 2,800 lin. ft. macadam road, near W. Milton	E. E. Pearson, County Auditor.
Illinois	Chicago	November 12, 11 A.M.	Paving W. Harrison St. No. 2 granite blocks; also retaining walls	John T. Hanberg, Com. Pub. Wks.
Maryland	Denton	Nov'ber 12, noon.	Grading and macadamizing one mile Three Bridges Road	S. L. Dukes, County Clerk.
Ohio	Lima	November 12	Macadamizing, curbing, gutter, etc., N. Jefferson Street	L. L. Crumrine, Sec'y B. P. S.
Pennsylvania	Harrisburg	November 12	Constructing 6,427 ft. macadam road, 16 ft. wide, Ashton twp.	State Highway Department.
New York	Brooklyn	Nov'ber 13, 11 A.M.	Paving, repairing, grading, etc., various streets	Bird S. Coler, Boro President.
Iowa	Cedar Rapids	November 14	Paving portions 15th and 19th Sts., repressed vit. brick block	W. C. Byers, Chm. Pub. Imp. Com.
Ohio	Cincinnati	November 15, noon.	Paving Hog Back Road	Fred. Dreihs, County Clerk.
Florida	Pensacola	November 15, noon.	Constructing 107,700 sq. yds. clay or shale block, sheet asphalt, bitulithic, wood block or macadam pavement and 115,950 lin. ft. concrete curb	T. Chalkley Hatton, Ch. Eng.
Iowa	Davenport	November 15	Paving several streets	Thomas Murray, City Engineer.
Mississippi	Brookhaven	November 18	Laying five miles of concrete sidewalks	City Clerk.
Ohio	Sandusky	November 18	Imp. Venice Rd., 9 ft. wide, 9 in. stone, 6-in. Chestnut top-dress.	Chas. Kubach, Co. Auditor.
New York	Albany	November 18–21	Constructing 56 macadam roads, aggregating 240 miles	Fred'k W. Skene, State Eng'r.
Pennsylvania	Harrisburg	November 19	Constructing 13,088 ft. road, 16 ft. wide, in Logan township	Jos. W. Hunter, State Highwy. Com.
Arkansas	Hot Springs	November 20	Paving Imp. Dists. Nos. 21 and 26 inc. 10,000 sq. yds. asphalt, bitu. or block on 6-in. concrete and 5,000 sq. yds. vit. block	F. V. P. Ellsworth, City Eng'r.
South Carolina	Columbia	November 25, noon.	Paving Main St. with vit. brick; wood block, asphalt or bitulithic, inc. 65,000 sq. yds. paving, 17,000 lin. ft. combined concrete curb and gutter, 4,500 ft. concrete storm drains	Chas. Narcy, Chm. St. Com.
Indiana	Logansport	November 29, noon.	Constructing gravel road, line bet. Cass and Carroll Cos.	George W. Gann, Co. Auditor.
Indiana	Monticello	December 3, 10 A.M.	Building stone macadam road; also Kelley gravel road	J. L. Ackerman, Co. Auditor.
Flordia	Palatka	December 3, noon.	Paving 22,805 sq. yds. brick; 9,857 lin. ft. granite or concrete	J. E. Craig, City Engineer.
Utah	Salt Lake City	December 6, 8 P.M.	Grading, paving and curbing First South St., inc. 60,000 cu. yds. grading, 17,000 lin. ft. curb, 41,000 sq. yds. asphalt	Louis C. Kelsey, City Engineer.
Water Supply				
Oklahoma	Chilocco	November 7, 2 P.M.	Improving water system at Chilocco Indian School	S. M. McCowan, Superintendent.
Oklahoma	Hobart	November 9, 8 P.M.	Extending water mains, inc. 18,000 ft. 4-in., 5,500 ft. 6-in. c.i. pipe	O. E. Noble, City Engineer.
Oregon	Huntington	November 9	Boring well, 1,000 ft. deep, cased with 6-in. iron casing	City Clerk.
New York	Fort Terry	Nov'ber 11, 11:30 A.M.	Furnishing material and sinking 6-in. tubular well	Capt. Wm. E. Horton, Q. M.
Idaho	Lewiston	November 11, 5 P.M.	Furn. f.o.b. 9,400 ft. 12-in., 5,400 ft. 8-in., 4,000 ft. 6-in., 14,000 ft. 4-in. c. i. or steel pipe, pressure, 300 lbs.; 14,000 lbs. 4 and 8 12-in. c.i. fittings; 12,000 lbs. pig lead; double-gate valves, 200 lbs. pressure six 12-in. 17, 8-in.; 27, 6 in.; 48 4-in valves; 100 valve boxes, 20 6-in., 20 4-in. hydrants, etc.	Jno. E. Nickerson, City Clerk.
Nebraska	Trenton	November 11	Furn. and erecting steel stand pipe, 16 ft. diam., 40 ft. high	W. H. Thornhill, Village Clerk.
Illinois	Chicago	November 12, 11 A.M.	Furnishing 178 tons special castings at city pipe yard	John J. Hanberg, Com'r Pub. Wks.
Minnesota	Pipestone	November 12, 2 P.M.	Erecting tank, tower, etc., also buildings	Willard S. Campbell, Superintendent.
North Dakota	Velva	November 12, 2 P.M.	Constructing water works system, including concrete reservoir, gravity pipe line and gasoline engine power	S. M. Jones, City Auditor.
Georgia	Atlanta	November 12	Furnishing 13,000 ft. 36-in. pipe to complete main to reservoir	Park Woodward, Gen. Mgr. W. W.
New York	New York	November 13, 2 P.M.	Furn. and erecting system of water curtains, with all piping, valves, manholes, sprinkler heads, etc., 2 high-pres. stations	John H. O'Brien, Com'r Wat. Sup. G. and E.
Wyoming	Fort MacKenzie	Nov'ber 14, 10 A.M.	Constructing 8-in. c. i. main from reservoir to fort system, etc.	Capt. Wm. D. Davis, Q. M.
Alabama	Fort Morgan	November 14, 2 P.M.	Building pump house, installing 2 horizontal tubular boilers 50 h.p.; 2 compound duplex pumps, ice plant, cold storage	Capt. L. F. Garrard, Q. M.
Spain	Madrid	November 14	Supply of water meters 7 to 100 mm. caliber; atmospheres minimum pressure, any system	Isabel II Canal Commission.
Manitoba	Winnipeg	November 15, noon.	Supplying 15 miles of assorted water pipe	H. N. Ruttan, City Engineer.
Minnesota	Sioux Rapids	November 15	Building $25,000 water system	City Clerk.
New Jersey	Camden	November 19, 8 P.M.	Furn. 12 or more copper Cook patented 8-in well screens	Jos. Potter, Chm. Water Com.
Georgia	Atlanta	November 25	Furnishing 20,000,000 and 25,000,000 gal. vertical or cen. pumps	Park Woodward, Gen. Mgr. W. W.
Alabama	Fort Morgan	November 28, 2 P.M.	Erecting 150,000-gal. steel tank on 75-ft. trestle	Capt. L. F. Garrard, Q. M.
Arizona	Phoenix	December 1, 3:30 P.M.	Labor and material for water works improvements	Robert Craig, Superintendent.
Idaho	Shelley	December 1	Constructing water works, to cost $6,500	N. N. Holm, Engineer.
Georgia	Millen	December 1	Constructing water and electric light systems	H. Q. Bell, Mayor.
New Jersey	Camden	December 17, 8 P.M.	Improving present artesian water supply system and adding to 17,000,000-gal. supply at least 5,000,000-gals. daily	Jas. Potter, Chm. Water Com.
Sewerage				
New York	White Plains	November 7, 1:30 P.M	Constructing 7 sections, inc. 12 miles circular sewer, 3½ to 6 ft. diam. and 3 miles circular-lined tunnel 6½–8½ ft. diam. of monolithic rein. concrete, block or brick masonry	Frank N. Glover, Sec'y B.V.Sew.Com.
Minnesota	St. Paul	November 7, 2 P.M.	Constructing sewer in St. Anthony and Wilder Aves	R. L. Gorman, Clk. Bd. Pub. Wks.
New York	West Seneca	November 7, 4 P.M.	Constructing sewer, Bethlehem st., also one in Lebanon St.	Jos. Waldraff, Town Clerk.
Pennsylvania	McKeesport	November 7, 4 P.M.	Constructing 18-in. sewer	C. E. Soles, City Comptroller.
Indiana	Fort Wayne	November 7, 7:30 P.M.	Constructing vit. pipe sewer in alley near Grace Ave.	H. W. Becker, Clk. Bd. Pub. Wks.
Mississippi	Hattiesburg	November 7, 8 P.M.	Constructing sanitary sewers, inc. 2,640 ft. 15-in., 2,090 ft. 12-in., 8,550 ft. 10-in., 15,150 ft. 8-in pipe, 90 manholes, 7 flush tanks, 20 cu. yds. concrete masonry, 900 cu. yds. excavation, 140,000 ft. B. M. sheathing left in trench; 45,000 ft. B. M. foundation lumber	J. H. Putnam, City Engineer.
Ohio	Youngstown	November 7	Furn. material and laying sewers in portions of 3 sts	W. H. McMillin, Clk. B. P. S.

Sewerage—*Continued.*

Ohio	Chagrin Falls	November 9, noon	Constructing sewerage system and disposal plant; cost, $56,000.	W. P. Rice, Eng. Co., Clevelan d.
Oklahoma	Hobart	November 9, 8 P.M.	Furn. material and constructing storm water system, inc. 48 to 30-in. concrete and brick sewers; 21 and 18 concrete, brick or pipe, 15, 12, 10-in. pipe sewers, 16 manholes; 34 catch basins.	D. E. Noble, City Engineer.
Indiana	Indianapolis	November 11, 10 A.M.	Constructing local sewer in alley; also one in Wash. Blvd.	Blaine H. Miller, City Eng'r.
New York	New York	November 11, 11 A.M.	Constructing sewer in Third Ave.; also catch basin.	Joseph Bermel, Boro. Queens.
Pennsylvania	Lancaster	November 11, noon	Building 2,200 ft. 108-in. reinforced concrete sewers and appurtenances.	Chas. G. Baker, Clk. Sp. Sew. Comm.
Florida	Pensacola	November 11, 3 P.M.	Sewerage and plumbing at Santa Rosa Quarantine Station.	James Knox Taylor, Wash., D. C.
Indiana	Aurora	November 11, 7 P.M.	Constructing 6–20-in. vit. tile sewers; Dist. No. 1; cost, $12,500.	Frank D. Johnston, City Clerk.
Wisconsin	North Milwaukee	Nov'ber 11, 7:30 P.M.	Bldg. concrete septic tank, 42 ft. diameter, 16 ft. deep, with brick power house, 18 ft. diam. by 10 ft. high above it.	W. G. Kirchoffer, Madison, Eng'r.
New Jersey	Atlantic City	November 11, 8 P.M.	Drainage system and 25 lines of conduits, inc. new vit. clay block gutters on concrete, at 50 curved corners. etc., Pac. Ave.	J. W. Hackney, City Clerk.
Indiana	Seymour	November 11, 8 P.M.	Constructing 10 in., also 15-in sewer.	Fred. Everback, City Clerk.
Ohio	Springfield	November 11	Furn. material and constructing portion high level interceptor, inc. 9,816 ft. vit. pipe, plain or rein. concrete sewer, 9,376 ft. 6-in. pipe, 17,875 cu. yds. rock exc., 115 cu. yds. concrete, etc.	W. H. Sieverling, City Engineer.
Ohio	Lima	November 12	Laying sewer and improving N. Jefferson St.	L. L. Crumrine, Sec'y B. P. S.
Pennsylvania	Reading	November 13	Constructing three storm sewers.	Elmer H. Beard, City Eng'r.
Massachusetts	Boston	Nov'ber 15, 2:30 P.M.	Constructing in rock and earth trench and tunnel Sec. 81 and parts Secs. 83, 85 Ext. High-Level Sewer, S. Met. System in Brookline and Brighton; five with $15,000 security each; one, $20,000.	Wm. M. Brown, Ch. Eng. Sewerage Works, Met. Water & Sewerage Bd.
Ohio	Canton	November 25	Pipe sewer, 5,000 ft. 15–24-in.; 37 catch basins; 20 manholes.	B. F. Faust, Clk. Bd. Pub. Serv.
Michigan	Cadillac	December 2, noon	Building sewage purification works and pumping station.	George Johnson, Clk. Bd. Pub. Wks.
New York	Auburn	December 3, 8 P.M.	Construct'g Fourth, Fifth, Sixth, and Seventh Ward sewers and disposal plant, inc. 37, 150 ft. 8-20 in. pipe, etc.	J. Walter Ackerman, City Eng.
Philippine Isds.	Manila	January 19, noon	Twelve pumps and motors for new sewer system.	J. F. Case, Chief Engineer.

Public Buildings

New York	Utica	November 7, 2 P.M.	Wood and metal furniture for new Co. Court House.	Edwin H. Risley, Chm. Com.
New York	Fulton	November 7	Installing steam heating plant for City Hall.	City Clerk.
North Carolina	Winston-Salem	November 7	Erecting a county jail.	Fr. P. Milburn & Co., Wash., D. C.
Pennsylvania	Pittsburg	November 7	Erecting $30,000 engine house; also $40,000 police and fire house	Frank Ridgway, Dir. Pub. Safety.
Oregon	Fort Stevens	November 8, 2 P.M.	Erecting, plumbing, heating, etc., barracks for 100 men.	Constructing Quartermaster.
Louisiana	Mansfield	November 9	Erecting a high school.	A. F. Jackson, Sec'y Bldg. Com.
New York	Brooklyn	November 11, 11 A.M.	Heating, ventilating, addition, etc., School No. 140.	C. B. J. Snyder, Supt. Sch. Bldgs.
Ohio	Cincinnati	November 11, noon	Constructing school at Westwood, to cost $150,000.	Garber & Woodward, Archs.
Louisiana	New Orleans	November 11, 1 P.M.	Erecting City Hall annex building.	Wm. J. Hardee, City Engineer.
New Jersey	Atlantic City	Nov'ber 11, 8:30 P.M.	Erecting rein. concrete rest pavilion and comfort station.	H. A. Stout, Bartlett Bldg., Arch.
Kansas	Parsons	November 12, 2 P.M.	Erecting administration building at State Hospital.	F. W. Knapp, Sec'y Bd. Control, Topeka.
Minnesota	Pipestone	November 12, 2 P.M.	Constructing stone warehouse, hospitals, etc.	Willard S. Campbell, Superintendent.
Washington	Seattle	Nov'ber 12, 3 P.M.	Erecting Engineering, Chemistry, and Auditorium bldgs., State University.	A. P. Sawyer, President.
Kansas	Downs	November 12	Erecting brick and stone school.	W. H. Boughner, Clk. Sch. Bd.
North Dakota	Hillsboro	November 12	Erecting an armory.	Haxby & Gillspie, Fargo, Arch.
New York	Central Islip	November 13, 3 P.M.	Erecting tuberculosis pavilion at State Hospital.	F. B. Ware, Albany, State Arch.
Pennsylvania	Pine Grove	November 14	Constructing State armory.	Armory Board, Harrisburg.
New Jersey	Jersey City	November 14	Erecting annex to School No. 14.	Board of Education.
Wyoming	Cheyenne	Nov'ber 15, 10:30 A.M.	Heating plant for new hospital, Fort D. A. Russel.	Capt. V. K. Hart, Q. M.
Wisconsin	Chippewa Falls	November 15, 3 P.M.	Constructing, complete, U. S. Post Office.	James Knox Taylor, Wash., D. C.
Wisconsin	Superior	November 15	Furn. material and erecting $45,000 addition to Normal School.	Wm. Kittle, Sec'y Bd. Regents.
Missouri	Jefferson Barr'ks.	November 19, 11 A.M.	Erecting 2 barrack buildings, heating, wiring, etc.	O. W. Bell, Quartermaster.
Virginia	Fort Monroe	November 20, noon	Twenty-five bathrooms, inc. construction, repairs, etc.	Capt. Ernest R. Tilton, Q. M.
Ohio	Dayton	November 21	Erecting 4-story, fireproof, steel and tile or rein. concrete manual training school 70 x 233 ft. press brick and stone or terra cotta trimmings; cost, $120,000; equipment, $30,000 more.	Charles I. Williams, Architect.
Virginia	Portsmouth	November 22, 3 P.M.	Constructing, complete, Federal Building.	James Knox Taylor, Wash., D. C.
Texas	Tyler	November 25, 3 P.M.	Constructing, complete, extension to Federal Building	James Knox Taylor, Wash., D. C.
West Virginia	Franklin	November 25	Erecting brick jail and jailer's residence.	W. M. Boggs, Pres. Co. Court.
Indiana	Marion	November 29, 3 P.M.	Constructing, complete, U. S. Post Office.	James Knox Taylor, Wash., D. C.
North Dakota	Devil's Lake	December 2, 3 P.M.	Building foundations, etc., for Federal Building.	James Knox Taylor, Wash., D. C.
Missouri	Nevada	December 3, 3 P.M.	Constructing complete, U. S. Post Office.	James Knox Taylor, Wash., D. C.
Maine	Waldoboro	December 5, 3 P.M.	Erecting extension to Federal Building.	James Knox Taylor, Wash., D. C.
Pennsylvania	Warnersville	December 9	Erecting Infirmary and ext. to dining room; State Asy. for Ins.	A. A. Ritcher, Reading, Arch.
Texas	Alpine	December 10	Erecting 2-story brick, stone and concrete block school.	H. T. Phelps, San Antonio, Arch.
Michigan	Detroit	December 17, 3 P.M.	Erecting, complete, extension to Federal Building.	James Knox Taylor, Wash., D. C.
Georgia	Cairo	February 1	Erecting $40,000 County Court House; also $13,000 jail.	Alex. Blair, Macon, Architect.

Bridges

Pennsylvania	Mauch Chunk	November 7	Erecting new eastern span on bridge over Lehigh River.	D. O. Straup, Chm. Co. Com'rs.
California	Redding	November 8, 10 A.M.	Erecting bridge over Sacramento River, near Castle Craig.	S. N. Witherow, Clk. Bd. Superv.
Manitoba	Carman	November 8, noon	Erecting 90-ft. Pratt truss steel bridge, 18-ft. rdway, conc. abut.	A. Malcomson, Sec'y Treas., B. P. W.
Ohio	Cincinnati	November 8, noon	Reflooring suspension bridge over White River nr. Harrison.	Fred Dreihs, County Clerk.
Pennsylvania	Donora	November 8 noon	Erecting joint Co. bridge over Monongahela: 5 truss spans, 2 viaduct approaches, steel work 1,550 ft. long; roadway 25 ft. clear; one walk 6 ft. clear; plank floor, 2 electric car tracks; sub. of 2 river piers of stone, concrete foundations; 14 concrete pedestals, 2 concrete abutments.	A. H. Nelson, Hartje Bldg., Pittsburg, Engineer.
Indiana	Richmond	November 9, 11 A.M.	Constructing 9 bridges and 2 arches in 8 townships.	County Commissioners.
Iowa	Des Moines	November 9, 11 A.M.	Constructing reinforced concrete culvert, 30th and North Sts.	W. W. Wise, Bd. Pub. Wks.
Washington	Centralia	November 9	Bridging and grading State Aid road No. 5, Harrison Ave.	Jos. M. Snow, St. Highway Com.
Texas	Wharton	November 11, noon	Erecting steel highway bridge 32 ft. wide over San Bernard.	G. S. Gordon, County Judge.
New Jersey	Newark	November 11, 2 P.M.	Erecting concrete arch bridge Watchung Ave., Bloomfield.	G. F. Drum, County Engineer.
Ohio	Hamilton	Nov'ber 12, 10 A.M.	Erecting concrete substructure bridge over Two-Mile Creek.	Chr. Pabst, Co. Auditor.
Ohio	Troy	Nov'ber 12, 10 A.M.	Erecting substructure for bridge and rein. concrete culvert.	H. J. Walker, County Engineer.
Ohio	Cincinnati	November 15, noon	Repairing bridge over Miami River near New Paltimore.	Fred Dreihs, County Clerk.
Montana	Glendive	November 15, 2 P.M.	Constructing 34 steel bridges, Lower Yellowstone Project.	U. S. Reclamation Service.
Oregon	Portland	November 15, 4 P.M.	Erecting steel bridge in Union Ave	Douglas W. Taylor, City Engineer.
Pennsylvania	Mill Run	November 15	Erecting stone abutments and wing walls bridge over Mill Run, Springfield twp.; also 35 ft. steel superstructure.	M. E. Townsend, Chm. Co. Com'rs.
South Carolina	Georgetown	November 20	Erecting steel drawbridge over Mingo Creek	J. B. Johnson, Co. Superv.
Oregon	Portland	November 20, 4 P.M.	Erecting rein. concrete bridge over Sullivan's Gulch, E. 28th St.	Douglas W. Taylor, City Eng.
Pennsylvania	West Bethelehem	November 20	Erecting rein. concrete bridge over Broad St., 60 ft. wide, 5 spans 2 of 75 ft., 2 of 90 ft., one 100 ft.	L. A. Francisco, Easton, Co. Eng'r.
Spain	Madrid	December 14	Erecting 14-meter wide bridge over Manzanares.	Public Works Department.
China	Canton	December 31	Constructing steel cantilever and girder bridge, 1,102 ft. long, in the Front Reach, Canton.	Canton River Bridge Co.
Missouri	St. Charles	February 13	Erecting Cuivre River bridge at Old Monroe; cost, $8,000.	County Commissioners.

Lighting and Electricity

Pennsylvania	Pittsburg	November 7	Installing $7,000 electric light plant, 5th Ave. high school.	Chas. Reisfar, Jr., Sch. Bd.
Indiana	Kokomo	November 8, 10 A.M.	Furnishing electric lights for streets and public buildings.	W. T. Meck, City Clerk.
Minnesota	Minneapolis	November 8	Lighting sts. and aves. with gas and electricity during 1908; also for supplying gas for st. lamps, and furn. 7,000 incan. st. lamps	L. A. Lydiard, City Clerk.
Colorado	New Fort Lyon	November 9, 11 A.M.	Erecting central power, light and heating plant, Naval Hospital.	Navy Department, Washington, D.C.
Florida	Key West	November 9	Furn. 125 h.p. steam boiler and accessories, complete.	Quartermaster, Barracks.
California	Chico	November 12	Constructing electric light and heating plant.	L. D. McMacy.
Ohio	Cincinnati	November 14	Furnishing material and installing light fixtures for Soldiers' and Sailors' Memorial Building.	Sam'l Hannaford & Sons, Architects.
Dis't of Col'bia.	Washington	November 14	Furn. fire alarm telegraph system, marine electric fixtures, batteries, etc., Isthmian Canal Commission.	H. F. Hodges, Gen. Pur. Agent.
South Carolina	Charleston	November 15, noon	Lighting sts. and public bldgs., 1, 2 or 4 yrs., inc. 500 arc. lights or equivalent in 5 ft. gas burners.	Ion Simons, City Electrician.

Lighting and Electricity—*Continued*

Ohio	Newburgh Hts	November 18	Supplying village with lighting	P. S. Ruggles, Garfield Bldg., Clvlnd.
Quebec	Montreal	December 1	Illuminating and heating gas; also electric lighting and heat	Fire and Light Com., Council.
Georgia	Millen	December 1	Constructing electric light and water systems	J. B. McCrary & Co., Atlanta, Eng.
Indian Terr'y	Red Fork	December 20	Constructing electric railway and power plant to serve Red Fork, Tulsa, W. Tulsa and Glen Pool; cost of plant, $100,000	J. Robert Burnham, Tulsa, Engineer, Mid-continental Traction Co.
India	Calcutta	December 31	Lighting town by electricity, gas, oil, or other method; now lighted by 9,300 gas lamps of 24 c.p. and 2,400 c.p. oil lamps	Municipal Council

Miscellaneous

New York	Brooklyn	November 6, 11 A.M.	Dredging Newtown Creek; 14,500 cu. yds. scow measurement	Bird S. Coler, Borough President.
New York	New York	November 7, noon	Furnishing 50 sets double truck harness, St. Cleaning Dept	W. Bensel, Commissioner.
New York	New York	November 7, 3 P.M.	Furn. two 12-ton, 3-wheel steam road rollers, Boro. Bronx	Department of Parks, Bronx.
Dist. of Col'bia.	Washington	November 8	Furn. Portland cement, boiler, feed pumps, etc., Isth. Canal Commission	H. F. Hodges, Gen. Pur. Agent.
New York	New York	Nov'ber 11, 10:30 A.M.	Supplying 32,500 ft. fire hose; 4 grades	F. J. Lantry, Fire Commissioner.
New York	New York	November 11, 11 A.M.	Gen. construction, etc., grand-stand Crotona Park, Bronx	C. B. J. Snyder, Supt. Sch. Bldgs.
Pennsylvania.	Etna	November 11, 5 P.M.	Furnishing 500 ft. 2½-in. cotton-lined fire hose, etc.	A. R. Dunbar, Boro. Clerk
Florida	Key West	November 12, 9 A.M.	Furnishing 125-h.p. boiler for barracks	Quartermaster.
Illinois	Chicago	November 12, 11 A.M.	Removing 5,500 cu. yds. from bed of Chicago River south end Oakley Ave.; and bldg. 75-ft. new dock, etc.	John J. Hanberg, Com'r Pub. Wks.
Dist. of Col'bia.	Washington	November 12, 2 P.M.	Furn. red bricks for National Museum Building	Bernard R. Green, Supt. Constr.
Dist. of Col'bia	Washington	November 14	Furn. firemen's helmets, fire alarm system, hose, nozzles, fire harness, attachments, etc., Isthmian Canal Com.	H. F. Hodges, Gen. Pur. Agent.
Pennsylvania	Altoona	November 15	Collection and disposal of garbage	Frank Engstrom, City Eng.
Oregon	Portland	November 18, 11 A.M.	Furnishing 4 hoisting engines, 3 locomotives, 2 boilers	Col. S. W. Roessler, U. S. Eng'rs.
Texas	Dallas	November 18	Building locks and dams 2 and 4 on Trinity River	Capt. W. P. Wooten, Eng. Corps.
South Carolina	Fort Moultrie	Nov'ber 21, 11:30 A.M.	Constructing a wharf at Fort Sumter	J. M. Fulton, Quartermaster.
Texas	Austin	November 21	Constructing concrete retaining walls and abutment, containing 1,324 cu. yds. concrete; cost, $8,000	C. E. Leonard, City Engineer.
New York	New York	November 30, 11 A.M.	Unloading and delivering ashes furn. by Dept.St. Cleaning	Louis F. Haffen, Boro. Bronx.
Pennsylvania	Altoona	December 4	Collection and sanitary disposal of garbage, 1, 3, 5 or 10 years	Samuel B. Frees, Sec'y Bd. Health.
Louisiana	New Orleans	December 11	Thirty-year franchise, beginning June 30, 1912, to construct, maintain and operate electric street railway through several sts., including St. Bernard Ave. and Broad St.	Chas. R. Kennedy, Comptroller.
Tennessee	Chattanooga	January 7	Screen wagon service between P.O. and depts. 4 years, rural deliv'y	W. Scott Raulston, Postmaster.

STREET IMPROVEMENTS

Oakland, Cal.—Resolutions have been passed to grade, curb and macadamize on Second avenue, and on East Tenth street; grade and sewer Franklin avenue; pave parts of Twenty-third avenue; lay sewers on three streets; open Fifty-first street.

San Francisco, Cal.—Plans have been adopted for paving East street from Kearney to Taylor; bids will be advertised; estimated cost of work, $48,000. The Engineer was instructed to prepare similar plans and specifications for paving East street from Market to a point just north of Folsom street.

St. Augustine, Fla.—San Marco avenue is to be paved with vitrified brick, under the supervision of the Street and Lane Committee; car tracks will be laid at the same time.

Champaign, Ill.—The property owners of South Neil street have petitioned for paving.

Quincy, Ill.—The Board of Local Improvement will readvertise for bids for paving Tenth street between Sycamore and Maple; the bids received were all too high.—W. P. Walton, Mayor Best, and City Engineer Hancock, Board of Local Improvements.

Bluffton, Ind.—Only one bid was received by the County Treasurer, E. G. Saurer, for the issue of $117,280 worth of gravel road bonds; the bidder was S. A. Kean, of Chicago.

Monticello, Ind.—Bids will be received at the Auditor's office until 12 o'clock noon November 25, 1907, for the sale of bonds for the construction of a macadam road in Monon township. The bonds amount to $47,700, and they bear interest at the rate of 4½ per cent. Bidders must deposit $1,000 to be forfeited as liquidated damages in case he fails to take and pay for said bonds within 30 days thereafter, in case they are awarded to him or them. M. B. Spencer, Treasurer, and J. L. Ackerman, Auditor. Bids will be received at the same office for $12,000 worth of bonds bearing the same interest, and requiring the same deposit.

Noblesville, Ind.—Tenth street, the principal thoroughfare in this city, a mile and a half in length, will be improved under the new gravel road law, which requires the township to pay the expense. It connects two roads leading into the country. The viewers have filed their report with the Auditor, and they recommend that the street be improved with crushed stone. The City Engineer estimates the cost at $17,000.

Des Moines, Ia.—The Council has ordered that West Sixth street be paved.

Grand Rapids, Mich.—The city will have some paving done in the business section as soon as new East Bridge street sewer is completed.—L. W. Anderson, City Engineer.

Meridian, Miss.—The matter of issuing $200,000 30-year road bonds is under consideration.—Address County Auditor.

Joplin, Mo.—Ordinances have been prepared for construction of concrete sidewalks on Fourteenth street, Kentucky avenue, and paving with vitrified brick and laying curb on Joplin street.

St. Joseph, Mo.—Ordinances have been prepared to grade portions of Tenth street and Nineteenth street, and lay sidewalks on Twentieth street; a petition has been presented to lay sidewalks, curbing and pave the roadway with vitrified brick on cinder foundation on Vine street and is under consideration.

St. Louis, Mo.—The Board of Public Improvements has called a public hearing for November 15 on 37 proposed street improvement contracts; total cost of work to be let in three sections will be more than $150,000.

Mineola, N. Y.—The Nassau County Board has decided to issue $250,000 for road improvements.—Address County Auditor.

Akron, O.—Preliminary legislation for curbing and paving Forge street, Rhodes avenue and several other streets have passed Council.

Ordinances have been passed to pave four streets and establish grades on four.

Sealed proposals will be received by the Board of Public Service for paving several streets, in the city, in accordance to plans and specifications.—Chas. H. Watters, Secretary.

Arlington Heights, O.—Bids will be received, November 12, for the purchase of $1,200 5 per cent. street improvement bonds.—J. W. Evans, Village Clerk.

Canton, O.—An ordinance has been passed providing for issue of $15,000 bonds for street improvements.—Geo. H. Leggitt, President of Council.

Cleveland, O.—Resolutions have been adopted to lay stone or cement sidewalks on eleven streets.

Conneaut, O.—A brick pavement 32 feet wide and 2 miles long is to be started early in the spring, from the east approach to the high level bridge through the East Side; this will be taken up with the County Commissioners; it is expected the work will be completed by fall.

Hillsboro, O.—Bids will be received, November 30, for the purchase of $5,400 5 per cent county road improvement bonds.—John G. Roads, Auditor.

Lima, O.—Bids will be opened, November 25, for $25,000 bonds for paving North Main street, and $10,000 for South Metcalf street; 5 per cent. interest, payable semi-annually.—Fred C. Beam, City Auditor.

Lorain, O.—Council will readvertise for the purpose of paving.—Address City Clerk.

Martin's Ferry, O.—The Board of Service has decided to pave Zane street early next summer.

Norwood, O.—Bids will be opened November 14, for $4,477.84 4½ per cent. bonds for improving Rolston avenue, also for $300.50 bonds.—W. E. Wichgar, City Auditor.

Portsmouth, O.—Court street is to be paved next summer; preliminary legislation for this big improvement will be immediately enacted so that the work can be done early in the spring.

Bids will be received, December 2, for $7,000 4 per cent. semi-annual street improvement bonds.—Filmore Musser, Village Clerk.

Sandusky, O.—The new estimate for Washington street paving which the engineer has just submitted is sheet asphalt $37,800, block asphalt $44,000, brick $35,000, bitulithic $31,500; ordinances for bond issues for the construction of sewers on Filmore street and for the reconstruction of the sewer on Pearl street and the large sewer on Putnam avenue have passed the Council.

Woodsfield, O.—Bids will be received, November 17, for $5,721.66 5 per cent. semi-annual street improvement bonds.—George P. Dorr, Village Clerk.

Lawton, Okla.—The City Engineer has been directed to prepare plans and specifications for street improvements, at an estimated cost of $90,000.

Portland, Ore.—Until such time as the validity of the amendments to the city charter, passed at the last municipal election, is decided, all street improvements will be made under the original provisions of the charter, without reference to the amendments.

This is the decision of the street committee of the City Council, so that any danger of plunging the city into endless litigation may be avoided.

Columbia, S. C.—Plans and specifications for paving Main street have been accepted, and bids will be asked on five methods of paving—asphalt, vitrified brick, bitulithic, wooden blocks and concrete asphalt. The engineer suggested that the city require a guarantee of ten years with all work except the vitrified brick and the wooden blocks, which need not be included in the guarantee clauses; estimated cost for the entire street is from $190,000 to $215,000, with about $45,000 to be paid by the street railway company for track paving and the three feet on each side, as required by the franchise.

Lebanon, Tenn.—An election will be held, November 20, to decide on the question of issuing $10,000 5 per cent. street bonds.—H. L. Coe, Mayor.

Ft. Worth, Tex.—The city expects to pave about 15 miles of streets with brick, asphalt or bitulithic; specifications may be had on application to E. C. Woodward, City Engineer; J. J. Nunnally, City Auditor.

St. Albans, Vt.—Surveys are in progress for a plan to reconstruct the entire sewer system of St. Albans. The plans are to be completed this season, to submit the matter of construction to the citizens at the next annual election in March, 1908. These will include a trunk sewer taking all of the sewage from the present outlet in the brook and carrying it through a system of septic tanks and filter beds, before discharging the effluent. Norman N. Atwood is Mayor, Arthur W. Dudley, 936 Elm street, Manchester, N. H., is Engineer.

Milwaukee, Wis.—Chas. Poetsch, City Engineer, is reported to have submitted a proposition to the Metropolitan Park Commission for a boulevard system around the city.

SEWERAGE

Washington, D. C.—Justice Barnard of the Supreme Court of the District of Columbia, at the instance of James Francis Smith, Assistant Corporation Counsel, signed an order appointing Carl J. F. Graff, William F. Gude and John A. Hamilton as commissioners to appraise the value of land to be condemned for the purpose of the construction by the municipal authorities of a trunk sewer, in accordance with the provisions of Chapter 15 of the District code. The ground to be condemned for the sewer is situated in a tract of land known as Clifton, along the easterly side of square 1299, between Wisconsin avenue and Rock Creek, and is owned by Morris Adler, James Elverson and the heirs of the late Robert Barnard. The Commissioners certified to the court that they had endeavored to acquire the land needed for the sewer in question by purchase from the owners thereof, but were unable to obtain the same at a satisfactory price.

St. Augustine, Fla.—Property owners in the northern part of the city have offered to sewer several blocks, and upon completion of the system, present it to the city.

Lincoln, Ill.—Specifications and plans have been prepared and bids are invited for the construction of a sewer.—Edwin B. Maltby is City Engineer.

Aurora, Ind.—Sewers ranging from 6 to 20 inches are to be constructed at an estimated cost of $12,500.—Charles Carroll Brown, Indianapolis, Consulting Engineer; Frank D. Johnston, City Engineer.

Des Moines, Ia.—The plans for the construction of a sewer in Woodland avenue, have been completed. Bids will probably soon be asked.

Dayton, Ky.—The question of issuing $28,000 bonds for constructing a sewer system is to be submitted to a vote of the people this fall.

Shelbyville, Ky.—An election will be held to decide the question of issuing $30,000 bonds for the construction of sewer system.—Address City Clerk.

Harbor Springs, Mich.—W. D. Wright, Clerk of the Village of Harbor Springs, will open bids for constructing what is known as the Fourth street sewer and also the East Third street sewer; work must be done according to plans on file.

Port Huron, Mich.—An effort will be made to lay out a sewer system in the Ninth and Tenth wards. A committee has been appointed to look over the ground and prepare an estimate.

St. Joseph, Mo.—An ordinance has been prepared for the construction of a sewer in a portion of sewer District No. 8, to begin at Twenty-fourth and Edmond streets.

Webb City, Mo.—At a special election to be held about the middle of November the question of voting $30,000 bonds for the construction of both sanitary and storm sewers will probably be brought before the people.

Holdrege, Neb.—Council has passed an ordinance calling for the issue of $20,000 sewer bonds.

East Rutherford, N. J.—Citizens have voted for a sewer system for the Borough, and Council will immediately begin proceedings for its construction.

Akron, O.—Sealed proposals will be received by the Board of Public Service, for constructing sanitary sewer system, in several streets, according to plans and specifications.—Charles H. Watters, Secretary.

Alliance, O.—J. H. Lloyd, President of the Council, states that a sewer outlet for the sewage disposal plant is to be constructed and a bond issue in the sum of $5,700 for the improvement is to be authorized.—J. H. Lloyd, President of Council.

Canton, O.—Proposals will be received for constructing a complete sewer system in several streets, according to plans and specifications.—George H. Leggitt, President of Council.

An ordinance has been passed for the issue of $25,000 4½ per cent. bonds for constructing a storm water sewer; also $2,000 bonds and $1,300 bonds for other storm water sewers bearing 4 per cent. interest.

Cleveland, O.—Ordinances have been passed to construct sewers in Forestdale avenue and in East Fifty-seventh street.

An ordinance has also been passed authorizing the Mayor of the City of Cleveland to enter into an agreement with the New York, Chicago and St. Louis Railroad Company, for building a sewer in and along the south side of the said railway company's right-of-way.

Upper Sandusky O.—The Council will issue $15,000 bonds for the construction of sewer system, plans for which have been prepared by Engineers Riggs and Sherman of Toledo.

Youngstown, O.—Preliminary legislation has been introduced calling for the construction of the Mahoning avenue sewer extension.

Ordinances have been passed to proceed with the construction of sewers in four streets.

Portland, Ore.—A complete sewer system will probably be built in Sellwood, from the Portland Crematorium south to the city boundary. Estimated cost, $100,000.

Bradford, Pa.—The Mayor has been requested to instruct the Street Commissioner to lay the Fisher avenue sewer under the direction of the City Engineer as it has been found impossible to get bidders on the work.

Chester, Pa.—Ordinances have been passed for the construction of an 18-inch terra cotta pipe sewer on Fifth street, from Pennell street to Lloyd street; for the construction of a 3-foot brick sewer on Jeffrey street, beginning at Seventh street and extending thence northwardly along Jeffrey street to Ninth street.

Wilkes-Barre, Pa.—Plans are being prepared for proposed sewer to take care of the surface water from the eastern sections of the city.—City Engineer.

Chattanooga, Tenn.—Mayor Crabtree has vetoed the action of the Board of Public Works in awarding contract for the construction of the Chestnut street storm sewer, on the ground that until at least sanitary sewers have been provided in certain portions specified in Sewer Districts Nos. 1, 4 and 11, he cannot approve any other contracts that will exhaust the sewer fund or necessitate the creation of a floating debt.

WATER SUPPLY

Pueblo, Colo.—A reservoir with an estimated capacity of 306,800,000 cubic feet may be built on Turkey Creek in the northwestern part of Pueblo County. Estimated cost, $80,000. F. L. Tebow, of Denver, has filed preliminary map with County Clerk.

Lewiston, Idaho.—Bids will be received, November 11, for the purchase of $57,000 ten to twenty years 5 per cent. water works bonds.—John E. Nickerson, Comptroller.

Natchitoches, La.—The Water and Electric Committee has been authorized to lay 2,500 feet of 4-inch mains and install five additional fire hydrants.

Thompson, Mont.—This city will have a modern water system. Trenches for the mains are being excavated in the principal streets, and over a mile of 4-inch pipe will be laid. The contract for installing the system has been awarded to E. S. Dorman.

Hearley, Neb.—The citizens have voted bonds for water purposes.—Address City Clerk.

Kimball, Neb.—Steps are being taken to establish a water system, estimated to cost $17,000.

Albany, N. Y.—The State Water Supply Commission has granted authority to the Hannacroix Water Company to construct a 30,000-gallon storage reservoir at Alcove, Albany County. This company is backed by Coeyman's capital, and supplies water to the village of Ravena and also to the West Shore Railroad at that point. The erection of the reservoir will insure a supply of water in times of heavy drought.

Lumberton, N. C.—The water system and sewerage system will be extended, bonds for $25,000 having been recently voted. R. C. Lawrence is Town Attorney.

Smithfield, N. C.—Bids will be received by N. M. Lawrence, Jr., F. H. Brooks and N. B. Gratham, for the construction of a complete system of water works.

Bowbells, N. D.—An election will be held to decide the question of issuing bonds for the construction of water system.

Cleveland, O.—An ordinance has been passed to expend $10,000 for brick for meter setting for the Water Works Department.

Defiance, O.—The city will issue $8,000 bonds for improving water system.—Address City Clerk.

Alva, Okla.—The citizens have voted $40,000 bonds for water system.—Address City Clerk.

Bristol, R. I.—Contract has been awarded to the Aberthan Construction Company of Boston to build the filter tanks, basin and sand beds in the improvement of the water system which supplies the towns of Bristol and Warren, and a portion of Barrington, and the New York Construction Jewell Filtration Company is to equip the filters with pipes, machinery and other furnishings necessary to the outfit. The contract for the superstructure of the filtration system is not let out at contract as yet, but will be soon.

Columbia, S. C.—The Water Commission has recommended the laying of a double system of water mains of 8 to 10-inch pipes on Main street from the State House to Elmwood avenue or at least to Richland street, with proper provision for future extension on West Gervais and South Main street. The City Engineer estimates that the cost to Elmwood avenue will be about $12,000 or to Richland street $10,000.

Nashville, Tenn.—The city contemplates rebuilding the reservoir plant, the present plant having been declared insufficient. Estimated cost, $2,500,000. John T. Ahearn is Superintendent of Water Works.

Dallas, Tex.—Preliminary plans have been agreed upon for erection of pump house across the railroad track from the old Turtle Creek Pumping Station of the Water Department; cost, $150,000 to $160,000.

Teague, Tex.—The citizens have petitioned Council to call for a $40,000 bond election for the purpose of building water works.

Blackstone, Va.—Bids will be received for the construction of a concrete reservoir to hold 250,000 gallons of water and for laying one-half mile of water pipes, according to plans and specifications, on file at the office of H. H. Seay, Chairman of the Committee.

Aberdeen, Wash.—The question of issuing $200,000 of bonds to bring water from the Wynochee river and provide a permanent and abundant supply will be submitted to the voters.

Cottonwood, Wash.—The Village Council has been asked for a franchise by the Cottonwood Water and Light Company, Limited, to allow the privilege of installing a water system.

Lake Geneva, Wis.—Bids will be received, November 12, for the purchase of $80,000 4 per cent. water works bonds.

Racine, Wis.—All negotiations for the purchase of the water works system have been dropped, and a proposition from the company accepted of a flat rate of $25 per annum for all hydrants, and a 5 per cent. reduction on the 30-cent per thousand rate to consumers.

London, Ont.—The Board of Water Commissioners are considering the extension of the water works system. Estimated cost, $575,000.

Guelph, Ont.—A complete set of filter beds, covering about 1¼ acres will be constructed here. Estimated cost, $10,000.

LIGHTING AND ELECTRICITY

Washington, D. C.—An American Consul in the United Kingdom states that there is no importing of electrical apparatus at the place in question, but a merchant there, whose name he gives, would like to communicate with makers of such apparatus and thinks it probable that he and others might become importers.—Address No. 1565 Bureau of Manufactures.

Ashburn, Ga.—An election was held to decide the question of issuing $45,000 bonds for the erection of an electric light plant, and the measure carried; work on the construction of same will begin in the near future.

Hagerstown, Ind.—An ordinance has been passed authorizing issue of $7,500 bonds for electric light purposes.—Address City Clerk.

Latonia, Ky.—Council has granted a 13-year franchise to the Kentucky Electric Company to operate a lighting plant; the company agrees to furnish arc lights for the city at $24 per lamp.

Iron River, Mich.—A. J. Lytle and F. A. Morrison, are contemplating the purchase of machinery for an up-to-date electric light plant, consisting of boiler, engine, dynamo, etc.

Wahoo, Neb.—It is proposed to construct water works and electric lighting systems here to cost between $50,000 and $60,000. The engineer has not been selected. Edward Lehnkuhl is Mayor.

Holley, N. Y.—The franchise for the laying of pipe in the Village of Holley for the purpose of furnishing gas for light, fuel and power purposes has been granted.

Hendersonville, N. C.—Bids will be received for lighting the town with electric lights; the town has at present 26 2,000-candle power lamps which will be increased to 30 more.—Michael Schneck, Mayor.

Springfield, O.—Chairman E. T. Ridenour, John N. Garver and Charles Dunn, of the Committee on Lighting have signed a report recommending that the Board of Public Service be authorized to advertise for bids for the street lighting from January 1, 1910, to January 1, 1920, and that a resolution be adopted giving the board authority to take action immediately.

Bradford, Pa.—The Bradford Electric Light and Power Company has been awarded contract for lighting the streets and municipal buildings for five years. Ordinance providing for granting the company a franchise for twenty-five years has passed second reading.

Elgin, Tex.—A. B. Graham, Smithville, Tex., proposes to establish light, water and ice plant, investing about $60,000.

Terrell, Tex.—The Attorney General has approved of issue of $15,000 electric light bonds.

Racine, Wis.—The lighting system in Racine and Madison is not satisfactory; the citizens have petitioned for improvements in same at once.—Address Mayor.

FIRE EQUIPMENT

Pasadena, Cal.—City Commissioner Medill has advocated the addition to the budget at the next election of bonds for the Fire Department amounting to $30,000.

The plans of the South Pasadena Board of Trustees for the establishment of a volunteer fire company are practically completed.

Washington, D. C.—One of the American Consuls in Southern Europe forwards the name of a firm of merchants at the place in question who would aggressively handle the sale of fire extinguishers.—Address No. 1564, Bureau of Manufactures.

St. Augustine, Fla.—A committee of Aldermen has been appointed to investigate the cost of an up-to-date fire alarm apparatus suitable to the city. The committee will visit Jacksonville to inspect the system in use there.

Rockford, Ill.—Chief Thomas will petition Council for the purchase of a fire steamer to be located in Central station.

Evansville, Ind.—Council proposes to install a complete fire alarm system.

Centralville, Mass.—An order has been introduced in Council providing for a loan of $20,000 for the erection of a fire house on the site recently purchased by the city in West Sixth street, near the corner of Ennell street, belonging to the Merrimack Manufacturing Company.

Saginaw, Mich.—Council is considering the matter of purchasing fire engines.—Address City Clerk.

Geneva, N. Y.—J. C. Eichmaier, of Utica, has reported that the fire alarm system is worthless; he has been retained to put it in proper working order.

Cincinnati, O.—The Finance Committee has under consideration the purchase of a chemical engine for the City Fire Department at a cost of $1 800; also for the purchase of a $1,500 boiler for Department.

York, Pa.—President H. Lister Free, of the Rex Hook and Ladder Company, has offered to build a new truck house provided the city will furnish the site.

Seguin, Tex.—Council is preparing to build new fire station.—Address Chief.

PUBLIC BUILDINGS

Detroit, Mich.—The Finance Committee has petitioned the City Comptroller to dispose of $499,000 worth of public school bonds as authorized by Council.—Address City Comptroller.

Waterville, Minn.—Bonds of $38,000 have been voted for purchasing a new site and erecting a modern and up-to-date new school house.

Paris, Mo.—Monroe County has voted $25,000 infirmary bonds.—Address County Auditor.

Kimball, Neb.—An election will be held to vote on the question of issuing bonds for the erection of county high school.—Address County Auditor.

Hamilton, O.—The proposition to issue $34,000 bonds for school purposes carried.—Address City Clerk.

Wapakoneta, O.—The Commissioners of Auglaize County have decided to issue $50,000 bonds to build an infirmary.

Monongahela, Pa.—Bids will be received, November 8, for the purchase of $52,000 4½ per cent. school bonds.—Charles W. Stevens, Clerk.

Pittsburg, Pa.—The School Board will advertise for bids for lighting plant for Fifth Avenue High School.

STREET RAILWAYS

San Francisco, Cal.—The Parkside Transit Company's franchise has been passed.

Muscatine, Ia.—James H. Collins, of No. 92 La Salle street, Chicago, Ill., is interested in the construction of the proposed interurban line from Parlor City, Cedar Rapids, to Tipton, and from Tipton two lines will branch out, one to Davenport and one to Muscatine.

Hastings, Neb.—Phil H. Barter, of Kansas City, and R. B. Hughes, of Omaha, is interested in a proposition to establish a new railway line through this city; the men represent the Folts Company of Minneapolis; work on the construction of same will commence in the near future.

Asheville, N. C.—The people of this county have voted bonds for constructing the proposed Appalachian Railroad.

C. F. White is interested in a proposition to establish a new electric line from Asheville to Henderson; a franchise has been granted.

Oklahoma City, Okla.—A car line on Fourth street from Broadway to Western avenue is contemplated by a street car company, and the work of construction will commence about January 1.

Stroudsburg, Pa.—Plans are being made to build a trolley line that will connect Wind Gap with Stroudsburg.

Denton, Tex.—Franchises for the construction of the proposed electric interurban to Fort Worth, have been granted; the Denton Interurban Railway Company will build an interurban line from Denton into Fort Worth.—Address President Griffin.

Houston, Tex.—A franchise was granted to the Houston Electric Company for extending the street railway lines to Harrisburg; the building of the road is to be completed within nine months, and no other power used but electricity.

Tacomah, Wash.—The Cascade Public Service Company has been organized, for the purpose of erecting a power plant for the Pacific Traction Company's lines; the proposed power plant will be modern in every respect and will generate 15,000 horse power.

La Crosse, Wis.—The La Crosse & Winona Electric Railway Company is arranging to erect an interurban line through the city of Onalaska; a franchise will be asked for.

BRIDGES

Los Angeles, Cal.—Council has authorized the Board of Public Works by resolution to advertise for bids for the construction of a cement arch bridge over the Arroyo de los Posos.

Uncasville, Conn.—The Town Board and Street Railway Company to combine and build a new bridge.

Peoria, Ill.—Travel over the Toledo, Peoria & Western Railway Company has increased so rapidly lately that the road has practically decided to tear out the old trestle at the east end of the structure and substitute a steel bridge instead.

St. Paul, Kan.—A new river bridge is to be built over the Neosho.

Alexandria, La.—Bids probably will soon be asked for the construction of a steel bridge over Bayou Rapids at Hynson Place. I. W. Sylvester, City Engineer.

Baltimore, Md.—O. F. Lackey, Harbor Engineer, City Hall, in estimate for work of his Department for 1907, includes a request for an appropriation of $25,000 to construct a swinging bridge of the bascule type over Jones' Falls to allow shipping to reach the dock.

Muskegon, Mich.—Mayor Campbell is interested in establishing new bridges in this city.

St. Joseph, Mich.—City Attorney Fyfe can give information in regard to the highway bridge that will be built across the river at this place.

Kansas City, Mo.—Estimates of cost and plans for seven new County bridges were ordered from County Surveyor Oscar Koehler by the County Court; two of the proposed structures are to be of steel 30 feet in length and located, one four miles northeast of Lee's Summit, and one on the north and south road, a mile and a half northeast of Blue Springs.

Wahoo, Neb.—The Dodge County Commissioner proposes to place two additional steel spans at the Platte river bridge.

Cincinnati, O.—Councilman Shaefer has had an ordinance passed in this city approving of an issue of $22,000 in bonds for a drawbridge.

Dayton, O.—Bids will be opened, November 14, for $20,000 4½ per cent. semi-annual Montgomery County bridge bonds; also for $13,000 ditch bonds.—G. J. Kauffman, County Auditor.

Newark, O.—The County Commissioners are agitating the proposition of building a bridge across the Ohio Canal.

Greensburg, Pa.—Bids for Donora Webster bridge to span the Monongahela river between Webster in West Moreland County, and Donora in Washington County, will be received by County Comptroller John D. Hitchman.

Northampton Heights, Pa.—An election will be held to vote on the proposition of issuing $10,000 bonds, for building a bridge.—Address City Clerk.

Pittsburg, Pa.—The Finance Committee has recommended the construction of a bridge across the Pennsylvania tracks at Ellsworth avenue; estimated cost, $39,852.

Belton, Tex.—The Bell County Commissioners have decided to build a new steel bridge over the Leon river.

Denison, Tex.—The Commissioners' Court from Sherman decided to place a 40-foot steel span with substantial approaches over Paw Paw creek.

Spokane, Wash.—Bids will be received, December 16, for the purchase of $400,000 4½ per cent. 25-year bridge bonds, and $100,000 5 per cent. 20-year Park bonds.—Robert Fairley, Comptroller.

The County Auditor has been instructed to advertise for bids on the bridge to be built over the Spokane river, between the counties of Stevens and Spokane.

Superior, Wis.—Mayor Victor Linley, in outlining his plan for a structure across the Nemadji, says City Engineer Banks roughly estimated the entire cost of making the fill, building concrete abutments at the river's edge, putting a steel arch as wide as the street across the river, laying a cement sidewalk six feet wide the whole length of the fill, macadamizing a 40-foot street the full length of the fill, parking the sides and top, all complete at less than $50,000. Estimates that have been given by railroad men are to the effect that a steel bridge of the required character would cost $100 a foot or $200,000 for the whole bridge, more than four times the cost for a complete city street across the bottoms.

MISCELLANEOUS

Oakland, Cal.—City Engineer F. C. Turner has submitted preliminary estimates of wharf construction on the western water front of the city, as follows: Two wharves, one and a quarter miles long, 200 feet wide, average length of piles 40 feet, estimate No. 1, ordinary construction, creosoted piles, lumber superstructure, 2,640,000 square feet at 54 cents per square foot, $1,425,000. Estimate No. 2—Protected piles, concrete cylinders around piles, steel caps, timber stringers and floor, 2,640,000 square feet at $2.10 per square foot, $5,702,400. Estimate No. 3—Protected piles and concrete floor, concrete cylinders around piles, reinforced concrete superstructure 2,640,000 square feet at $2.40 per square foot, $6,336,000. To dredge a slip 300 feet wide to a depth of 25 feet below water, and to dredge a fan-shaped approach to the same depth out to the channel would require, approximately, the removal of 2,205,000 cubic yards, which at 20 cents a cubic yard would be about $330,000. Dredging, building or railroads, not included in above estimate, bulkhead, 7,700 feet at $7, price $54,900. Pier two miles long by 200 feet wide; ordinary construction (same as estimate No. 1) 2,112,000 square feet at 54 cents, $1,140,480. Projected piles (same as estimate No. 2) 2,112,000 square feet at $2.16, $4,561,920. Projected piles and concrete floor (same as estimate No. 3) 2,112,000 square feet, $2.40, $5,068,800.

Washington, D. C.—New bids will be invited for the Administration Building for the Carnegie Institution at Sixteenth and P streets, at a cost of $200,000 on plans prepared by Carrere & Hastings, New York City, Architects; bids received at the October meeting of the Executive Committee were rejected.—Carroll D. Wright, Chairman.

One of the American Consuls in Canada writes that the officials at the place in question are desirous of improving the navigation of a certain river and of securing the services of a competent engineer who has had experience in similar work, and who can give them information as to the development work needed, the probable cost, and the time needed to secure the improvement in navigation needed.—Address No. 1571 Bureau of Manufactures.

Ashburn, Ga.—The citizens have voted $400,000 bonds for water and light plant.—Address City Clerk.

Waynesboro, Ga.—Through a bond issue Waynesboro recently became owner of its water supply and electric lights; lights and water are furnished to citizens at actual cost to the town.

Joliet, Ill.—Estimated cost of clearing out Hickory creek, in connection with the present work of the Spring creek Drainage Commission is as follows: Establishing a straight line between Second and Fourth avenues, with a channel 100 feet wide, and depositing the excavations of the creek bank to the east, the 10,680 cubic yards to be taken out would cost 50 cents a yard, or a total of $5,340. With a 100-foot channel from Washington street to the junction of Spring creek, there would be 6,480 cubic yards to be taken out. There is no chance to deposit this along the creek banks, and with an average haul of 2,000 yards, the cost would be 90 cents a cubic yard, or a total of $5,832.

Indiana Harbor, Ind.—The East Chicago and Indiana Water Works Company and the Indiana Harbor and East Chicago Electric Company, recently incorporated, are soon to ask bids for the erection and equipment of a water and electric lighting plant in this town.

Sapulpa, I. T.—An election will soon be called to vote on the proposition of $5,000 bonds for water and school purposes.

New Orleans, La.—The City Board of Engineers has asked for bids for the construction of the following levee work: Woodland Levee—Riverside street enlargements approximate contents, 25,000 cubic yards. Kamlah Levee—Revetment, approximating 28,000 feet in length. McDonogh Farm Levee—Revetment approximating 14,000 feet in

length. Moizart Levee—New levee and revetment, approximating 15,000 cubic yards, approximate length of revetment 15,000 feet.

Kalamazoo, Mich.—Dan J. Albertson, of Kalamazoo, Mich., is at the head of a corporation at Traverse City which owns twenty square miles of land along the Manistee river, which is making preparations to establish a large power plant; the company will be known as the Manistee River Power Company, successors to the Elctric Land and Development Company; capital stock $1,000,000; it is the purpose of the company to establish dams at several places along the river and to furnish power and heat not only for Traverse City but for Cadalliac, Elk Rapids, Manistee, and other places in that part of the State.

Munising, Mich.—The issue of $10,000 5 per cent. bonds was sanctioned by an election recently held.

Magnolia, Miss.—Bonds $25,000 have been purchased by C. H. Coffin, Chicago, Ill., at a premium of $751.

St. Louis, Mo.—The House of Delegates has asked the Board of Public Improvements to submit ordinances and specifications for several public comfort stations in the downtown district; cost about $5,000 each.

Beatrice, Neb.—The city will ask for bids for one 150-horsepower boiler.—S. H. Avery, City Clerk.

Manchester, N. H.—Council has voted to issue bonds in the sum of $60,000 to take up 6 and 7 per cent. notes.

Burlington, N. C.—The question of issuing $100,000 bonds for water and sewer plant will be again submitted to a vote of the people. —Address City Clerk.

Salisbury, N. C.—Bids will be received, November 7, 1907, for $100,000 street and general improvement bonds bearing 5 per cent. interest, the city has never defaulted in paying principal or interest on bonds. The bonded indebtedness of the city is $235,000, the assessed valuation of the property of the city is about $3,687,000, the estimated value about $7,000,000; a certified check for $1,000 will be required with each bid. For further information address H. J. Ocerman, City Clerk.

Ashtabula, O.—Council has appropriated $1,900 for the city's share of the improvement of the east approach to the Spring street viaduct; resolutions to proceed with the improvement of Madison street by the construction therein of sanitary sewers and for the improvement of Pennsylvania avenue by grading and draining have passed Council.

Bryan, O.—An ordinance has been passed providing for an issue of $10,000 5 per cent. bonds for enlarging and improving, repairing, purchasing and installing new pumping machinery, new electric lighting machinery, and new street lamps.—J. B. White, Mayor.

Cleveland, O.—An ordinance has been passed to expend $2,000 for the purchase of shade trees.

Columbus, O.—Arrangements are being made at the village of Reynoldsburg for putting in new water works and sewerage systems; many other municipal improvements are contemplated.

Port Clinton, O.—A $10,000 bond issue will probably be authorized for improving and beautifying the lake front.

Richwood, O.—Bids will be opened, November 9, for $8,000 4½ per cent. village improvement bonds.—R. L. Jordan, Village Clerk.

Hobart, Okla.—Bonds $65,000 have been voted for extension of water mains, sewerage purposes, etc.—Address Engineer Noble.

Oklahoma City, Okla.—Council offers for sale $250,000 improvement bonds; interest 5 and 4½ per cent. payable in thirteen years. —Address City Clerk.

Portland, Ore.—Superintendent Daggett has submitted to the special Council Committee appointed to select a site for a new garbage crematory estimates of the cost of installing a municipal system of collecting garbage. The installation of the system will cost $34,650, and maintenance for one year $45,100. The various items for the installation are: Thirty spans of horses, $18,000; thirty sets of harness, $1,950; thirty steel sanitary wagons, $9,000; two buggy horses, harness and buggies, $700; stable for department, $5,000; total, $34,650.

Bay City, Tex.—The electors of the Drainage District have voted to issue bonds for improvement purposes.—Address Secretary.

Kinney, Tex.—An election will be held, November 12 to vote on the issue of three sets of bonds to the amount of $26,000, divided as follows: For water works extension, $8,000; for extension of the municipal electric lighting plant, $8,000; for the purchase and improvement of a first-class city park, $10,000.

San Angelo, Tex.—Bonds $20,000 will be voted for school improvement and Fire Department bonds.—Address City Clerk.

Winnipeg, Man.—A motion will be introduced before the City Council authorizing the calling for tenders for another incinerator plant. The De Carie Manufacturing Company, 23 South Second street, Minneapolis, Minn., has just completed a plant, but the civic authorities refuse to complete payment for same on the grounds it does not fulfill the conditions claimed. The total cost of the incinerator was to be $126,430, of which the city has already paid $76,000. H. N. Ruttan is City Engineer.

BIDS RECEIVED

Los Angeles, Cal.—Robert Beyrle, 223 West Second street is low bidder for erecting Seventh street bridge over Los Angeles river, at $78,404, as follows: Breaking up old piers, $450; furnishing 510 tons of rock and placing at west bank at $2.25 per ton; removing and placing rock at east bank, $300; furnishing and driving 474 piles, at $12 each; 661 cubic yards concrete, Class A, at $11.50; 2,000 yards, Class B, at $10.25, and 2,780 yards Class C at $9.50 per cubic yard; steel rods in place, 210,500 lbs., $7,000; arch centers, $6,100; 210 square yards wash finished surface, at 20 cents; 234 square yards tool finished surface at 50 cents per square yard; 7,944 cubic yards filling, at 25 cents; 338 lineal foot bridge surfaced, at $2.50; 676 lineal foot curb, at 20 cents; the cost of excavation for piers and abutments has been distributed among other items; other bidders were: Union Iron Works, $79,531.87; C. Leonardt, $89,782.85; Atlantic, Gulf & Pacific Company, $94,534; Mercerian Bridge & Construction Company, $95,443.80; Burrell Bridge & Construction Company, $101,188.25; Cotton Bros. & Co., $102,078.46; Thomson Bridge Company, $107,869.44; Pacific Construction Company, $112,764,64; Melville Shelden, $119,691.20.—Homer Hamlin City Engineer.

Oakland, Cal.—The bid of the Oakland Traction Consolidated for an electric franchise on Thirteenth avenue of $1,000 was accepted.

San Francisco, Cal.—The contract for building a shed on Lombard street wharf was awarded to Mercer & Fraser for $22,475; there were twelve unsuccessful bidders.

San Jose, Cal.—Bids for the construction of cement sidewalks on the west side of Seventh street, fronting on the Horace Mann school property, were received by Council as follows: M. E. Kilcourse, $291; Thomas Harris, 14⅓ cents per square foot, amounting to $360; the contract was awarded to Mr. Kilcourse.

Bids for the construction of a sewer on George street from San Pedro street to the Guadalupe river: Charles Wehner, $722; S. F. Bennett, $745; referred to the Sewerage Committee; bids for sewer on River street, between Ryland street and Fox avenue; S. F. Bennett, $157; Charles Wehner, $157; referred to Sewerage Committee.

The contract for improving Whitney street, from Jackson to Taylor, was awarded to M. Winkelback at $1.42½ per lineal foot, he being the only bidder.

The Joshua Hendy Iron Works was the only bidder for the six electroliers advertised for, but the bid was worded with so many qualifications and provisos that it was referred to the Finance Committee with power to act; the price named was $750.

Santa Monica, Cal.—The bid of N. W. Halsey & Co. of par, interest and a premium of $2,475 for the joint issue of sewer and incinerator bonds has been accepted by Council. There were five bidders for the bonds, as follows: J. H. Adams of Los Angeles, par, interest and a premium of $5 for the last twenty-five bonds of the whole issue; E. H. Rollins, par, interest and a premium of $650 for the entire allotment; Los Angeles Trust Company, par, interest and $800 for the entire allotment; G. F. Doty, par, interest and a premium of $2,010 for the entire allotment; bid of Halsey & Co.

Bridgeport, Conn.—Contracts have been awarded for new sewers as follows, each contractor having been the lowest bidder: Newfield avenue sewer, E. T. Doolittle, 90 cents per running foot and $3.50 per foot for manholes; Alpine street sewer, Pierce Manufacturing Company, $1.90 per running foot and $3.50 per foot for manholes, Charles street, B. D. Pierce, Jr., Company, 90 cents per foot and $3.85 per cubic yard for rock and $2.50 per foot for manholes.

Plainville, Conn.—The Selectmen have awarded A. B. Griswold, New Britain, contract for constructing surface sewer in Whitney street for $2,885; Leonardo Luzis, Meriden bid, $3,127; P. H. Condon & Co., Bristol, $3,420; W. E. McManus, Waterbury, $6,245.50.

Washington, D. C.—The District Commissioners have commissioned Marsh & Peter, Archs., 520 Thirteenth street, N. W., to prepare plans and specifications for school building to be erected at Mount Pleasant, four stories, brick with stone and terra-cotta trimmings, modern conveniences; cost, about $125,000.

Fire apparatus has been accepted by the Commissioners upon recommendation of Chief W. T. Belt as follows: One combination 65-foot aerial hook and ladder truck and equipments from the Combination Ladder Company of Providence, R. I., at a cost of $4,000; two second-size steam fire engines from the American-La France Company of Elmira, N. Y., costing $5,000 each, and one aerial hook and ladder truck from the same company at $4,000.

Cairo, Ill.—Contract has been awarded to Alex. S. Fraser, the lowest bidder, for paving Second street from Ohio street to Washington avenue; vitrified brick will be the paving material used and the cost will be about $7,500; Garner & Hanes were the closest to the successful bidder, their bid being $46 more; W. R. Halliday was the highest bidder.

South Bend, Ind.—Contract has been closed between the South Bend & Southern Michigan Railway Company and the Indiana & Michigan Electric Company whereby the latter company will furnish the necessary power to operate the cars between this city and St. Joseph, Mich.; the contract will take effect just as soon as the new dam which is now under construction at Berrien Springs, Mich., is completed.

Iola, Kan.—R. S. Gilfillan has been awarded contract for 7,500 square yards brick paving, two course, on 6-inch cinder foundation at $1.32 per square yard; 350 cubic yards earth excavation at 38 cents; setting 5,550 lineal feet new stone curb at 38 cents, and laying 7,000 square feet 2½-inch stone sidewalks on 5-inch cinder foundation ,at 15 cents, and T. J. Rutledge 7,000 square feet brick walk on 5-inch cinders at 6¼ cents.—M. R. Amerman, City Engineer.

New Bedford, Mass.—Contract for street lighting has been awarded the New Bedford Gas and Edison Light Company for a period of five years from October 1, 1907; the city is to pay $97.56 for each arc light per year; $25.55 for each incandescent light; $28 for each gas light; and $31.50 for each naphtha lamp.

Worcester, Mass.—Bids for a new workshop for the Water Department were opened in the office of Mayor John T. Duggan as follows: Eli Belisle, $22,450; John J. Power, $22,650; James Miles & Son, $22,929; E. J. Cross, $24,362.48; Henry Mellen & Son, $24,532; Charles A. Kelley, $27,769, for stone foundation, and $28,100 for cement foundation.

Grand Rapids, Mich.—Kloote & Vander Veen have been awarded contract for East Bridge street sewer at a few dollars less than estimate of $5,500; it consists of two blocks of a sewer in improved portion of the business section, between two car tracks and on a heavy grade; the present sewer being too small and too shallow; surface in present sewer must be cared for in the reconstruction.—L. W. Anderson, City Engineer.

Brainerd, Minn.—Only one bid was received, October 21, for constructing 5,100 feet of sewer, etc., and it was rejected; bids will probably be readvertised.—H. J. Spencer, City Clerk.

Albany, N. Y.—The Board of Contract and Supply has awarded contracts for the pavement of Robin street from Madison avenue to Yates street to T. Henry Dumary for $3,608.35, and for a sewer in Bonheim street from Broadway to North Pearl street to John M. Holler for $1,009.

Dayton, O.—The B. P. S. has awarded contract for paving Robert Boulevard to J. O. Shoup & Co. at $10,142 on plain macadam with crushed granite dressing.

Kent, O.—Wildes & Davidson, Akron, have been awarded contract for 9,247 square yards brick pavement on 8-inch gravel foundation, including 625 cubic yards rock excavation and 4,041 feet berea straight curb and 207 feet circular curb.—T. A. McMahon, Clerk.

Toledo, O.—Gould & Lewandowski were low bidders for constructing sewer No. 1013, including 491-foot 15-inch double strength pipe sewer in 19.8-foot trench, clay and sand excavation and no ground water to be handled or paving to be excavated and relaid, at $1.50 per foot, and manholes at $30 each, sewer to be in alley southwest of Cincinnati street and alley between Michigan and Ontario streets, etc.; totals, Gould & Lewandowski, $796.58; John McMahon, $816.62; Matters & Tansey, $1,091.40; for constructing sewer No. 1010 in alley northeast of Lagrange street and alley between Moss and Austin streets, at $1,423.36, as follows: 341-foot 20-inch brick sewer, 4-inch shell, at $221, 359-foot 10-inch pipe at $1.57; manholes at $30, average cut, 14 feet; wages of common labor, $2.50 per day.—F. J. Consaul, Chief Engineer, Board of Public Service.

Zanesville, O.—The contract for paving Ridge avenue a distance of one mile has

been awarded to Adams Brothers at $137; the contract for a sewer in Walwick alley has been awarded to J. E. Brown.

Harrisburg, Pa.—The American Flag Company of New York has been awarded a contract to make a city flag 44x33 inches, to be used as a standard, for $90; M. C. Lilley, Columbus, O., bid $170; Wm. H. Horstman, Philadelphia, $120; Annin Flag Company, New York, $125; National Flag Company, Cincinnati, O., $335; Henderson Ames Company, Kalamazoo Mich., $183.50; William Lemberg, Philadelphia, $132.50; Walter E. Bush Company, New York, $150.

The Sanitary Committee has recommended acceptance of the proposal of the garbage plant contractors, Carlile & Martin, which firm secured an option on a plot in the vicinity of Seneca and Cameron streets.

Philadelphia, Pa.—Contracts for the electrical equipment at the Torresdale filter plant were awarded by Director Stearns to the D'Olier Engineering Company, at its low figure of $77,002.25; the next lowest bidder was the Mack Paving Company, its estimate being $83,323.50; the D'Olier Company was also awarded the contract for boilers for the plant at $32,350; the Allis-Chalmers Company, of Milwaukee, Wis., was awarded the contract for a centrifugal pump at $18,700; the only other bidder for the machinery was Walter Wood, who offered to install the pump for $24,500.

Washington, Pa.—J. Y. McLane has the contract for a large amount of paving to be done the coming spring.

York, Pa.—Contract for laying a concrete floor in the Rex Hook and Ladder House and make other repairs has been awarded to Jacob Seachrist's Sons; A. B. Kraft has been awarded the contract to lay a concrete sidewalk upon the East King street side of the Laurel Engine House; bids will be advertised for the erection of a new stable for the Union Fire Company.

Salt Lake City, Utah.—The Board of Public Works has let the contract for the installation of the new intercepting sewer pumping station to the Fairbanks-Morse Company for $13,375; the company's original bid was $12,950, which was about $3,000 lower than its nearest competitor, the Salt Lake Hardware Company, but it was found necessary to make some changes in the original specifications, and this amounted to an increase of $425 in the price originally asked; work on the pumping station will be commenced immediately; it will be located at Eighth West and Seventh North streets, and will pump sewerage from the intercepting sewer into the gravity sewer; it is expected that the plant will be installed by March 1; the contract let is only for the pumps and other mechanical appliances and plans will be immediately drawn for the pump house and contracts advertised for.—L. C. Kelsey, City Engineer.

Seattle, Wash.—The following are the bids opened, October 12, by the Board of Public Works for maintenance of 24,765 square yards asphalt pavement on Fortieth avenue: (a) Price per square yard; (b) totals: Rich & Harris, (a) 3 cents, (b) $7,429; Independent Asphalt Paving Company, Pioneer Building, (a) 2½ cents, (b) $6,191; L. B. Loomis & Co., Western avenue and Bell street, bid on October 12 for improving Thirty-first avenue as follows: Fixed estimate, $1,500; clearing and grubbing (lump sum), $1,575; 59,000 cubic yards earthwork, 37½ cents; 16 manholes to be adjusted, each, $20; 250 lineal feet 10-inch pipe sewer, $1.85; 90 lineal feet 12-inch pipe sewer, $2, and 120 lineal feet 8-inch pipe sewer, $1.60; total, $26,484; P. J. McHugh, 2228 Seventh avenue, bid for this work, $27,873.

The James Black Masonry & Construction Company, builders of the Alaska Block and the Hotel Washington, submitted the only bid for the Green Lake district of the north trunk sewer, at $993,036.50; the estimated cost of the sewer is fixed by the Engineering Department at $751,800; the Green Lake district of the north trunk sewer amounts to five and a half miles, and will encircle Green lake, following the route of the proposed boulevard from the lake to the university; the diameter ranges from three to twelve feet, and the specifications call for concrete with the exception of three-quarters of a mile of tunnel to be constructed of brick; the cost of the north trunk sewer is to be borne by a bond issue; the total expenditure for the purpose is estimated at about $4,000,000.

Spokane, Wash.—The Board of Works has made a contract with the Decarie Manufacturing Company, of Minneapolis, Minn., for a new 80-ton cremator to replace the present 40-ton plant; the price is $60,000, and the new plant must be in operation within six months; the city recently took over the operation of the cremator, collection and destruction of garbage and refuse and street cleaning.

NEWS OF THE SOCIETIES

League of California Municipalities.—The program of the convention to be held at Pasadena, November 12, is as follows:

Tuesday, November 12, 2 o'clock p. m.—Address of welcome by Mayor T. Earley, of Pasadena. Response by Mayor Turner, of Merced, President of the League. Report of the Secretary. Report of Committee on Legislation, Hon. N. W. Thompson, Alhambra. Reports on the special provisions of city charters: (a) "The 'Cash Basis' System of San Jose," by Mayor H. D. Mathews, of San Jose; (b) "The Non-Partisian Elections of Fresno," by Mayor W. Parker Lyon, of Fresno; (c) "The Civil Service System of Los Angeles," by Mayor A. C. Harper, of Los Angeles; (d) "The Recall at San Bernardino," by Mayor J. J. Hanford, of San Bernardino; (e) "Direct Legislation in San Francisco," by Mayor Edward Robeson Taylor, of San Francisco.

Evening Session—Subject for debate: "That the commission or council system of government as exemplified by the Galveston and Des Moines charters provides the more efficient machinery for the conduct of municipal affairs." Question: "Should the League attempt to formulate a model charter?" The discussion will be led by Mayor E. K. Taylor, of Alameda.

Wednesday Evening—"What Some Cities Are Doing in the Matter of Making Themselves Attractive," by Mayor Mott, of Oakland; Mayor Forward, of San Diego; Mayor Beard, of Sacramento, and others. Addresses on the planting of trees and their care by J. H. Reed, Tree Warden of Riverside, and City Forester E. J. Harper, of Los Angeles; "The Regulation of Billboards," by E. R. Allen, Billboard Inspector, of Los Angeles.

Thursday Evening—A discussion of the subject of revenue and taxation, with special reference to the pending constitutional amendment proposing a new system of taxation. The discussion will be opened by W. V. Nichols, of Oceanside.

Texas Association of Civil Engineers.—The fourth annual convention of the association convened at the County Court House at Galveston, October 26. The meeting was called to order by President C. G. Wells, of Galveston, and the following papers were read: "The Paving Situation in Texas," Charles S. Wadsworth, of Dallas, ex-Engineer of Oklahoma City. "Location of Irrigation and Pumping Plants," H. L. Hutson, of Houston. "What Is a Civil Engineer?" President C. G. Wells. "Street Paving and Its Consequences in a Rapidly Developing City," E. L. Dalton, of Dallas. "City Engineering," by Prof. T. U. Taylor, of the University of Texas. Dallas was chosen as the next meeting place. The convention elected the following officers to serve for the ensuing year: President, City Engineer E. L. Dalton, of Dallas; Vice-President, City Engineer A. T. Dickey, of Galveston. Edward C. H. Bantel will continue to serve as Secretary-Treasurer.

Pennsylvania Water Works Association.—The association met at Atlantic City, October 25. Dr. William C. Woodward, Health Officer of the District of Columbia, delivered an address on "Observations with Respect to the Prevalence of Typhoid Fever in the District of Columbia." He expressed the opinion that the United States Government should devote some of the millions it is spending in the effort to prevent the spread of diseases among plants and animals to the problem of preventing diseases among human beings. In reference to conditions prevailing in Washington, Dr. Woodward said that no evidence has been found to show that typhoid has been more prevalent in any one part of the city than in another; that it is not yet determined whether or not typhoid is more prevalent among the colored population; that no evidence has been found to show that it has been directly due to the milk supply, although a certain small percentage is charged up to milk; that it cannot be traced to oysters or vegetables, and that in no instance has it been traced definitely to the local water supply or to the public wells.

Boston City Club.—At a meeting, October 24, the question of improving the organization of the Boston municipal government was the topic under discussion. Colonel Thomas L. Livermore spoke in favor of a reform in the system of finance by the formation of a commission to have charge of appropriations, subject to the veto, by a three-fourths vote, of the City Council. Mayor C. N. Barney, of Lynn, advocated a government by a commission of five or seven men to be elected by the city at large. He favored the elimination of partisanship from city government. John J. Walsh described the city government of Baltimore, Md., as a good model for Boston to follow. Harvey S. Chase explained the advantages of greater publicity of accounts and the comparison of results.

Medical Society of the State of New York, First District Branch.—At a meeting in the Academy of Medicine, West Forty-third street, Dr. H. J. Shelly, of Middletown, N. Y., discussed the difficulties of procuring pure milk owing to the ease with which dairymen evade the regulations. Dr. S. W. S. Toms, of Nyack, in his paper, declared that the large infant death rate in New York and other cities was due to impure milk. Dr. E. S. Getty, of Yonkers, gave an account of work in that city in protecting the milk supply which had had the effect of cutting down infant mortality one-half. Dr. H. D. Pease, of the New York State Department of Health, read a paper on the transmission of typhoid fever. He regarded insects, particularly flies, as the most potent agency for the spread of typhoid.

New England Water Works Association.—The November meeting of the association will be held at Hotel Brunswick, Copley Square, Boston, Mass., Wednesday, November 13. The program is as follows:

10 o'clock. The rooms in Tremont Temple will be open for the use of members.

11:30 o'clock. Meeting of the Executive Committee at the headquarters, Tremont Temple.

1:00 o'clock. Lunch will be served at Hotel Brunswick, Copley Square. Tickets, $1.75, to be had at headquarters during the morning and later at the hotel.

2:00 o'clock. The following papers will be presented: "Fire Hydrants," by Robert E. Newcomb, M.E., Holyoke, Mass. "Stream Flow Data, from a Water Power Standpoint," by Charles E. Chandler, C.E., Norwich, Conn.

Topical discussion.

The committee appointed to nominate officers for the ensuing year report the following list:

President, Alfred E. Martin, Springfield, Mass.

Vice-Presidents, M. N. Baker, Montclair, N. J.; George A. King, Taunton, Mass.; Michael F. Collins, Lawrence, Mass.; George F. West, Portland, Me.; William F. Sullivan, Nashua, N. H.; R. A. Cairns, Waterbury, Conn.

Additional Members of Executive Committee, George W. Batchelder, Worcester, Mass.; D. N. Tower, Cohasset, Mass.; George A. Stacy, Marlboro, Mass.

Secretary, Willard Kent, Narragansett Pier, R. I.

Treasurer, Lewis M. Bancroft, Reading, Mass.

Editor, Charles W. Sherman, Boston, Mass.

Advertising Agent, Robert J. Thomas, Lowell, Mass.

Finance Committee, George Cassell, Chelsea, Mass.; John C. Chase, Derry, N. H.; William E. Maybury, Braintree, Mass.

American Institute of Electrical Engineers.—At the next regular meeting in the auditorium of the Engineers' Building, 33 West Thirty-ninth street, New York City, on November 8, a paper will be read by Albert H. Armstrong, Assistant Engineer, Railway Engineering Department, General Electric Company, Schenectady, N. Y., on "Comparative Performance of Steam and Electric Locomotives." The paper deals with steam and electric locomotives, with particular reference to the operating expense as affected by their different characteristics. Before the meeting there will be an informal dinner at 6:30 p. m. at the Hotel Victoria. The following members have been invited to take part in the discussion of the paper: Cary T. Hutchinson, Frank J. Sprague, W. J. Wilgus, N. W. Storer, George R. Henderson, L. B. Stillwell, J. G. Muhlfeld and B. F. Wood.

American Peat Association.—Business men and manufacturers interested in the development of peat as a fuel met at Jamestown Exposition October 23 and formed a permanent organization with the following officers: President, Dr. Joseph Hyde Pratt, State Geologist of North Carolina, from Chapel Hill; Vice-President, from Canada, Dr. J. McWilliams, of London, Ont.; Vice-President, from the South, R. Ransom, of Jacksonville, Fla.; Vice-President, from the Great Lakes, Carl L. Kleinstuck, of Kalamazoo, Mich.; Vice-President, from the Northeast, M. R. Campbell, of the United States Geological Survey, of Washington, D. C.; Secretary, Julius Bordello, of New York, and Treasurer, H. G. Holloran, of Boston, Mass.

Calendar of Meetings

November 6.

American Society of Civil Engineers.—Regular semi-monthly meeting at the house of the Society, 220 West Fifty-seventh street, New York City.—Charles Warren Hunt, Secretary.

November 7-8.

National Civil Service Reform League.—Convention, Buffalo, N. Y.

November 12.

National Tax Association.—Conference, Columbus, O.

November 13.

New England Water Works.—Monthly meeting, Hotel Brunswick, Copley square, Boston.—Willard Kent, Secretary, 715 Tremont Temple, Boston, Mass.

November 17-19.

National Municipal League. — Annual convention, Providence, R. I. (in conjunction with the American Civic Association).—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

November 19-21.

Canadian Clay Products Manufacturers.—Fifth annual convention, Ottawa, Canada.

November 25-27.

National Drainage Association.—Annual congress, Johns Hopkins University, Baltimore, Md.—A. G. Bernard, Chairman. Executive Committee, 1420 New York avenue, Washington, D. C.

December 5-7.

Society for the Promotion of Industrial Education.—Convention, Chicago, Ill.—C. R. Richards, Secretary, Columbia University, New York City.

December 26.

International Sanitary Convention of American Republics.—Third international meeting, Mexico City.—Surgeon General Walter Wyman, Chairman International Sanitary Bureau, Public Health and Marine Hospital Service, Washington, D. C.

January 22-23.

Iowa Brick and Tile Association.—Twenty-seventh annual convention, Des Moines, Iowa.—C. B. Platt, Secretary, Van Meter, Iowa.

February 3-4.

American Ceramic Society. — Twenty-second national convention, Hartman Hotel, Columbus, O.—Theo. A. Randall, Secretary, Columbus, O.

February 3-4.

National Paving Brick Manufacturers' Association.—Southern Hotel, Columbus, O. —Theo. A. Randall, Columbus, O.

TRADE NOTES

Electrical Equipment.—The General Electric Company, Schenectady, N. Y., in Bulletin No. 4532, describes its direct-current motor-starting rheostats, types SA and SO. Type SA rheostats are made for one-minute duty, with no voltage release, and are suitable for use with shunt, compound, or series-wound motors. Type SO rheostats are similar to type SA, but they have, in addition to the no-voltage release attachment, an overload coil in series with the motor armature. Bulletin No. 4538 describes catenary line material. This bulletin contains 32 pages and describes many new designs in frogs, crossings, hangers, etc. Separate parts and complete installations are illustrated.

Enterprising Lighting Company.—The New Bremen Electric Lighting Company, New Bremen, O., publishes an attractive booklet describing the operation and business method of the company. It is stated that the company sells $8.50 worth of electric current to every man, woman, and child in the town. The pamphlet is written by F. H. Plaice, the General Manager, and was published in the *Western Electrician*.

Flashlight Patrol Box System.—Max R. Eaton, Niagara Falls, N. Y., is the inventor of a flashlight patrol box system now being installed in North Tonawanda. A system similar in some respects has been in use in Meadville, Pa., for four years. The system consists of a light call on top of the patrol boxes which can be flashed by wire from stationhouses or headquarters. At night the attention of a policeman on a street can thus be attracted to any box within sight.

Gasoline-driven Pump.—Earl Canedy, Chicago Heights, Ill., has placed on the market a pump which is driven by a horizontal engine, is adapted to both deep and shallow well-pumping, and is simply constructed, to meet the needs of general service in the hands of unskilled operators. The cylinder head and water jacket are cast in one piece, eliminating the necessity for use of packing to guard against gas and water leakage. For deep well pumping the pump cylinder is placed below the water line, and for shallow pumping it is located within the base of the engine; both intake and discharge pipes enter and leave the cylinder through openings in the opposite side of the base. The engine, which develops 2 1-2 horsepower, it is stated, will pump about 2,000 gallons of water per hour to a height of 50 feet on a consumption of 1 1-2 to 2 pints of gasoline.

Pumps.—The Fred M. Prescott Steam Pump Company, Milwaukee, Wis., publishes a well-illustrated catalogue describing its long line of pumps. Passing by the various designs of mining pumps, the Prescott Multi-Stage Turbine Pump, suitable for fire service and water works, attracts attention. In this machine each stage is built separately and all stages heavily bolted together without use of through bolts or other connections, thus permitting the number of stages to be increased or decreased. A double-suction feature is claimed to eliminate all end-thrust in the pump and to balance each stage perfectly, independently of any other stage, the result being high efficiency and low cost of repairs. For water works and general pumping, the Prescott Corliss Cross Compound High Duty Water Works Pumping Engines and the Triple Expansion Pumping Engines are offered to the trade.

PATENT CLAIMS

868,165. Gate Valve. William W. Doolittle, Chicago, Ill., assignor to Crane Company, Chicago, Ill., a Corporation of Illinois. Serial No. 265,730.

In a gate valve, the combination, with a casing having oppositely disposed seats and a fluid passage, of a stem and a reciprocating gate for closing such passage, comprising opposing seating members, one of which is provided with radially directed stiffening ribs and the other of which has yielding edges constituting a seating face and is connected to the rigid member inside its yielding edges by means of a cylindrical rib.

868,297. Automatic Gas Lighting and Extinguishing Apparatus. Al B. Shaw, Medford, Mass. Serial No. 311,897.

In an automatic gas lighting and extinguishing device, a time mechanism, a rotary shaft operated by the time mechanism, disks carried by and rotated with said shaft, crank pins carried by said disks, a weighted lever engaged by said crank pins during their rotations to intermittingly raise said lever and allow it to drop, gas controlling means operated by the movements of said lever, and an equation device operated by the rotations of said rotary shaft to automatically and intermittingly vary the time of the engagements of the crank pins and weighted lever, said equation device consisting of a frame carried by the rotary shaft, intermediate the disks which carry the crank pins, a rotary shaft mounted in said frame, a star wheel on said latter shaft, adjustable stop projections to be brought into engagement on the opposite sides of the star wheel to rotate the star wheel in opposite directions, and intermediate mechanisms between the rotary shaft in the frame and the disks which carry the crank pins to vary the positions of the crank pins relative to each other intermittingly at each rotation of said shaft, whereby the time of engagement and disengagement of the crank pins with the weighted lever is automatically varied to compensate for changes in the lengths of the days and nights.

868,524. Culvert. John S. Bayer, Warren, Pa. Serial No. 379,985.

In a culvert, the combination of a plurality of corrugated sections, said sections having an open bell at one end adapted to receive the end of the adjoining section, the ring or corrugation on the section received within the bell, and the rim of the bell bent down around the ring or corrugation.

868,565. Pipe Laying Machine. Charles A. Huffmaster, San Leandro, Cal. Serial No. 224,552.

A pipe laying machine having, in combination, a suitable support, a carriage adapted to reciprocate thereon, a hollow, longitudinally-grooved screw rotatably mounted on the carriage, gripping elements carried by the front end of the screw, a drill rod supported concentrically within the screw, said elements adapted to grip said rod whereby the rod and screw are turnable in unison, and means to rotate the screw, said means including a rotatable member provided with a fixed key engaging the groove in the screw whereby the latter may have a free longitudinal movement relative to said rotatable member.

868,672. Receiving Head for Catch Basins. August W. Kurz, Cleveland, O. Serial No. 153,364.

In a receiving head for catch basins, a horizontal metallic base plate having a manhole opening therein, a vertical manhole ring surrounding said opening, a metallic reinforcing fender plate upwardly inclined from the base plate, and an artificial body of concrete, cement, or the like, conjoined with said base plate and fender plate and surrounding the manhole ring aforenamed, the said fender plate being exposed at its upper edge beyond the said artificial body, substantially as described.

868,794. Hydrant. Franklin G. Midgett, Dallas, Tex.; Lillie S. Midgett, administratrix of said Franklin G. Midgett, deceased. Serial No. 316,748.

A device of the character described comprising a casing having a water inlet, a suction outlet, means for closing said outlet, a pressure inlet and a pressure outlet, a valve within the casing and normally preventing the escape of water from the casing and into the pressure inlet and outlet, said valve having a passage normally connecting the pressure inlet and outlet, and means for turning the valve to permit the flow of water under normal pressure from the interior of the casing to the pressure outlet, said valve being disposed to constantly close the pressure inlet against the escape of water therethrough from the interior of the casing.

INCORPORATIONS

Ardmore Traction Company, Ardmore, I. T.; to build and operate a street car system in Ardmore; capital, $500,000. Incorporators: C. L. Byrne, President; W. F. Whittington, W. P. Poland, Joe F. Robison, D. Fitzgerald, Joe F. Myers and John D. Cameron.

Enamel Brick and Concrete Company of Seattle, Wash.; capital, $200,000; by Wesley Compton, Kasper Compton, George W. Bailey.

Florida Telephone Company, Florida. N. Y.; telephone line; capital, $5,000. Incorporators: George S. Vail, Floyd E. Tether, John K. Roe, Florida, N. Y.

Joseph Caruba Company, Brooklyn, N. Y.; contracting and stevedoring; capital, $25,000. Incorporators: Anthony Bonsignore and Josephine Caruba, 99 De Graw street, Brooklyn; Alex. Begg, 111 Broadway, New York.

M. O. Publishing Bureau, Jersey City, N. J.; printers, publishers, etc.; capital, $30,000. Incorporators: Arthur H. Grant, 356 Broadway, Elizabeth, N. J.; C. A. Bowman, Jr., 80 Washington square, east, New York; Walter Neumaller, 127 East Sixteenth street, New York.

Orange and Cronomer Lake Power and Realty Company, Newburgh, N. Y.; real estate and water; capital, $100,000. Incorporators: Joseph H. Banigan, 120 West Fifty-eighth street, New York; Emily T. Henning, 62 Mt. Hope place; Martin C. Krug, 464 East One Hundred and Forty-first street, both of the Bronx.

Rochester Acetylene Burner Company, Rochester, N. Y.; to manufacture acetylene burners, etc.; capital, $50,000. Incorporators: Henry E. Shaffer and William H. Shaffer, 34 College avenue; Adam E. Long, 27 Rauber street, all of Rochester, N. Y.

Stoddard Garbage Burner Company, Chicago, Ill.; to manufacture garbage burners and destroyers; capital, $25,000. Incorporators: Daniel Weber, Elmer E. Beach, M. E. Shea.

Strong Lighting and Improvement Company, Strong, Me.; to light by electricity or otherwise; capital, $10,000. President and Clerk, P. D. Stubbs; Treasurer, F. H. Daggett, both of Strong, Me.

Civil Service Examinations

Topographical Draughtsman.—The Municipal Civil Service Commission, 299 Broadway, New York City, announces that applications will be received until 4 p. m. November 27, for the position of topographical draughtsman. Salary $1,200 per annum and up. Apply to Secretary Frank A. Spencer.

Civil Engineer.—The U. S. Civil Service Commission announces an examination, December 4-5, to fill ten vacancies in the position of Civil Engineer in the Philippine Service, at $1,400 per annum each. It is desired to secure from this examination eligibles for higher positions. Apply for forms 2 and 375.

Civil Engineers, Designers, Draftsman.—The New York State Civil Service Commission will hold examinations, November 16, for the following positions: Assistant Civil Engineer, Public Service Commission, First District, salary $1,500 to $1,800; Bridge Designer, salary $1,500 to $1,800; Bridge Draftsman, $1,200 to $1,500; Civil Engineering Draftsman, $4 to $5 daily. The last day for filing applications is November 9. Application forms may be obtained by postal card request to the Chief Examiner of the Commission, Albany.

Contracting Engineer.—The United States Civil Service Commission announces an examination, November 13, to fill vacancies in the position of constructing engineer in the Forest Service, at salaries of from $1,500 to $2,000 per annum. Applicants will not be required to appear at any place for examination. Apply for Form 304 and special form.

Draughtsman-Cartographer. — The United States Civil Service Commission announces an examination, November 27, to fill vacancies in the position of draughtsman-cartographer in the Philippine Service, at $1,800 per annum. Apply for Forms 2 and 375 and a copy of the manual.

Proposals

FURNISHING AND LAYING SEWER PIPE AND BUILDING DISPOSAL WORKS

Auburn, N. Y., Oct. 12, 1907.

Sealed proposals will be received by the Mayor, Hon. E. C. Aiken, until 8 p. m. December 3, 1907, for the construction, first, of sewers and appurtenances thereto; second, for the construction of a disposal works for said sewer system. The sewers to consist approximately of the following: 14,700 feet of 8-inch, 11,300 feet of 10-inch, 6,000 feet of 12-inch, 3,600 feet of 15-inch, 300 feet of 18-inch, 1,250 feet of 20-inch.

Excavation varies in depth from 5 to 18 feet. There will be approximately 16,000 cubic yards of excavation, a part of the same being in solid rock. There will be about 17,000 feet of 5-inch vitrified tile for house sewer connections to be laid from the main sewer to the curb line. There will also be laid in the main trench and underneath the main sewer, as ground water demands, subsoil drains about as follows: 20,000 feet of 4-inch, 6,000 feet of 6-inch, 7,000 feet of 8-inch, 2,000 feet of 10-inch, 200 feet of 12-inch. All of the subsoil drain tile to be vitrified tile known as seconds. 84 manholes with an average depth of 9 feet, 12 flush tanks, 12 lamp holes.

The disposal works consist of reinforced concrete, septic tanks and contact beds, and automatic appliances for dosing them.

For the sewers a bond for an amount equal to double the gross amount of the contract, or a certified check for $5,000, will be required of all bidders. For the disposal works a bond for an amount equal to double the gross amount of the contract, or a certified check for $2,500, will be required of all bidders. The contract will be let in two sections—section 1 to consist of all sewers and appurtenances to the same, and section 2 of the disposal works. Bidders may bid on either or both. The Common Council reserves the right to reject any or all bids. Specifications, general plans and blank forms of proposal may be seen at the office of the City Engineer, J. Walter Ackerman, and will be ready for distribution November 1, 1907.

J. S. HANLON,
City Clerk.

PAVING

Notice to Contractors

Office of the Board of Public Works,
Salt Lake City, Utah, Oct. 12, 1907.

Sealed proposals will be received at this office until 8 o'clock p. m. Friday, December 6, 1907, for the work of grading, curbing and paving First South street from Second East street to Thirteenth East street.

The approximate quantities of work to be done are as follows:

Grading—60,000 cubic yards.
Curbing—17,000 linear feet.
Asphalt pavement—41,000 square yards.

Instructions to bidders, together with specifications and forms for contract and bonds, can be obtained upon application at the office of the Board of Public Works or City Engineer.

The right is reserved to reject any and all bids.

By order of the Board of Public Works.
F. J. LEONARD,
Chairman.

LOUIS C. KELSEY,
City Engineer.

STEEL TANK AND TRESTLE

Office of Constructing Quartermaster,
Fort Morgan, Ala., Oct. 29, 1907.

Sealed proposals will be received here until 2 p. m. November 28, 1907, for the construction of a 150,000-gallon steel tank on a 75-foot trestle. Envelopes containing proposals should be addressed "Proposals for steel tank, etc.," and addressed to Captain L. F. Garrard, Fort Morgan, Ala.

GARBAGE COLLECTION AND DISPOSAL

Department of Health,
Room 15, City Hall,
Altoona, Pa., October 28, 1907.

Sealed proposals will be received by the Board of Health of the City of Altoona, Pa., until Wednesday, December 4, 1907, for the collection and sanitary disposal of all city garbage for a period of one, three, five or ten years, under Ordinance No. 2429.

A security bond in the amount of Twenty Thousand ($20,000) Dollars must accompany each bid.

The Board reserves the right to reject any or all bids.

Bids must be addressed to
SAMUEL B. FREES,
(19-21) Secretary.

SCHOOL BUILDING

Cincinnati, Ohio.

Sealed proposals will be received at the office of Clerk, Board of Education, Cincinnati, Ohio, until 12 o'clock noon, Monday, November 11, 1907, for the construction of a new 17-room school building on Montana and Harrison avenues, in Cincinnati, Ohio. For information, plans, specifications, form for bidding and other particulars, address Garber & Woodward, Architects, 508 Neave Building. By order of the Board of Education.

DR. J. M. WITHROW,
Chairman, Building Committee.

HOISTING ENGINES, BOILERS, ETC.

U. S. Engineer Office,
Portland, Ore., Oct. 18, 1907.

Sealed proposals for furnishing and delivering four hoisting engines, three locomotives and two boilers will be received here until 11 a. m., November 18, 1907, and then publicly opened. Information furnished on application.

S. W. ROESSLER,
Lieut. Col., Engrs.

MUNICIPAL CIVIL SERVICE COMMISSION

299 Broadway
New York, October 31, 1907.

Public Notice Is Hereby Given that applications will be received from Thursday, October 31, until 4 p. m. Wednesday, November 27, 1907, for the position of

TOPOGRAPHICAL DRAFTSMAN.

The examination will be held on Thursday, December 19, 1907, at 10 a. m.

The subjects and weights of the examination are: Technical, 5; experience, 2; mathematics, 2; neatness, 1.

Vacancies constantly occur. The salary is $1,200 per annum and up.

The provision of Clause 12 of Rule VII, to the effect that "no person who has entered any examination for appointment to a competitive position and failed therein or who has withdrawn therefrom, shall be admitted within nine months from the date of such examination to a new examination for the same position," is waived, so far as it applies to this examination.

For further information apply to the Secretary.

FRANK A. SPENCER,
(19-21) Secretary.

WANTS

FOR SALE—Second-hand asphalt patching plant, built by the Toledo Asphalt Patcher Company, for sale cheap. Address Warren Asphalt Paving Company, East Cambridge, Mass. 18-21

SUPERINTENDENTS — Municipal, civil, stationary, hydraulic, and heating engineers; landscape architects and designers; chemists; salaries, $1,000 to $5,000; positions open all sections. Write, Hapgoods, 305 Broadway, New York; or 1010 Hartford Bldg., Chicago.

WANTED—Position on survey corps or with civil engineer, by young man 18 years old, who has been studying civil engineering one year.—Address No. 425, Municipal Journal and Engineer.

The Municipal Journal and Engineer should always be on your library table as a constant current reference to all Municipal work.

RAILS
Locomotives
Contractors' Equipment
SEND FOR OUR WEEKLY LIST COMPRISING OVER 1,000 ITEMS
Walter A. "ZELNICKER" SUPPLY CO., IN ST. LOUIS